

amateur radio

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OCTOBER, 1971

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COVER STORY

The new Yaesu Musem model FDX-401, which is basically similar to the FDX-400/560 circuitry, with same p.a. output power. Front panel layout follows that of the FDX-560. Features introduced in the new model include a noise blanker, c.w. filter, and a cooling fan attached to the p.a. section.

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Frequency Coverage: 144 to 148 MHz.
Semiconductors: 33 Transistors, 5 FETs, 1 IC, 20 Diodes.
Power: 13.5V. Nominal Negative Earth.
Current Drain: Tx—10w., 2.1 amp. hi power;
1w., 1.2 amp. lo power;
Rx—150 mA.

Antenna: 50 ohm.

Size: 2-9/32" x 6-1/8" x 8-1/2".

Weight: 4.5 lbs.

Modulation: Variable reactance phase.

Number of Channels: 12.

Voltage Regulator: Built-in for freq. stability and protection.
Final Protection: Automatic protection of final to guard against antenna deficiencies or mistuning.

Modular Construction of all Tx and Rx sub-functions. Out-of-guarantee service available on an exchange module basis.

AC Supply for base (optional).

TRANSMITTER

Crystals: $F_{\text{TXAL}} = F \pm 8$, fundamental operation.

Deviation: 3-16 KHz., adjustable.

Final Output: Built-in VSWR Bridge controls APC circuit.

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RECEIVER

Sensitivity: Better than 0.4 μ V. for 20 dB. quieting. S + N/N at 1 μ V. input 30 dB.

Filters: Two at 10.7 MHz., one at 455 KHz.

Spurious Response: —60 dB.

Spurious Gain: —60 dB. or less.

Bandwidth: ± 15 KHz./—6 dB. point; ± 25 KHz./50 dB.

Squelch: Adjustable, 5 to —15 dB.

Audio Output: 1.5 Watts.

Frequency Control: $F_{\text{TXAL}} = (F - 10.7) \div 9$.

Calibration Tolerance: 0.0025%

Load Capacitance: 20 pF.

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(or what you
can do with your
semiconductors)

Much has been written in "Amateur Radio" and other publications about the design and construction of power supplies. It is not my intention, therefore, to go into the actual details of the power supply since this would only amount to a duplication of material already available.

The power requirements for the linear amplifier concerned are as follows:

- 600 volts at 400 mA. (peak)
300 volts at 30 mA.
100 volts negative bias.
6.3 volts.

The fact that two high tension voltages can be obtained from the one transformer makes this type of circuit an attractive proposition.

Circuits of this type, however, suffer from certain disadvantages.

Firstly, the use of semiconductor diodes allows high tension to be applied to the equipment before the valve filaments have reached operating temperature. This is undesirable and should, if possible, be avoided.

Secondly, if for any reason, bias to the valves is lost, then damage could result before the fuse blows.

Thirdly, if the fuse does blow, it will be found that the high tension does not reduce to zero. A check with a voltmeter will reveal that there is still something in the region of 300 volts at the 600 volt terminal.



This can readily be overcome by the inclusion of another diode in the centre tap of the transformer, as shown in Fig. 2. If now the fuse blows, then both the 600 volts and the 300 volts will be completely removed.

By incorporating a switch or relay at point X in Fig. 1, it is now possible to switch both high tension voltages with one pair of contacts without interrupting the supply to the filaments of the valves.

If we arrange this switch to have a time delay of approximately 30 seconds, and at the same time, interlock it with the negative bias in such a way that the high tension voltages are removed if the bias is lost, then the disadvantages of the circuit in Fig. 1 will have been overcome.

Fig. 3 shows the circuit of a simple arrangement which allows the high tension to be interlocked with the bias voltage without the use of a relay or switch.

The high tension is switched by an SCR in the negative return of the bridge rectifier circuit. This SCR requires a continuous signal on the gate to maintain conduction. As soon as the signal ceases, the SCR is switched off and the high tension is thus removed.

The signal for the SCR is obtained from a UJT relaxation oscillator con-



trolled by transistor Q2 which senses the bias voltage applied to the linear amplifier.

With the bias voltage present, Q2 is forward biased, thus completing the charging circuit, allowing the timing capacitor C1 to charge. When the voltage across the capacitor reaches the intrinsic stand-off ratio of the UJT, it is quickly discharged through the UJT and the transformer primary, causing a pulse to be applied to the gate of the SCR. The windings of the transformer are phased so that the pulses to the gate are positive in relation to the cathode.

The OA91 diode across the secondary of the transformer ensures that only positive pulses are applied to the gate.

The RC time constant of the oscillator has been chosen to provide a signal high enough in frequency to trigger the SCR early in each half cycle and maximum output from the power supply thus obtained.



The 9 volt supply for the unit could possibly be obtained from the negative bias supply via a resistor and a zener diode. If this is done, and a rectifier having an indirectly heated cathode is used for the bias supply, then a measure of delay will have been achieved.

I can see no reason why this idea could not be used in practice. The circuit in Fig. 3 could be incorporated in existing power supplies with little effort, or in new equipment if there is no objection to using a valve to give the time delay.

In my case, however, I wanted the power supply to be completely solid

Amateur Radio, October, 1971

A BIT OF LIGHT NONSENSE

J. L. SINCLAIR,* VK8ZSJ

Does the atmosphere affect light in the same way as it causes "reflection" of v.h.f. signals? Obviously the atmosphere does affect light quite markedly at times, hence mirages, but the problem is to decide whether the action is the same in both cases.

Some time ago I lived in a spot that had been selected for its view, an expanse of Adelaide's southern suburbs and Gulf waters with Yorke Peninsula some times visible on the horizon. It was a good spot for v.h.f. DX, too, although I must admit I did not make full use of it. I had often wondered whether the atmosphere would affect light in the same way as it caused "reflection" of v.h.f. signals. Obviously the atmosphere does affect light quite markedly at times, hence mirages, but my problem was to decide whether the action was the same in both cases.

Preliminary thought about the subject led me to several conclusions, such as:

(a) Propagation of v.h.f. is not normally a reflection?

A true reflection will have the characteristics of the normal h.f. bands such as skip zones, propagation over long distances with very little loss, and fading due to multi path working. The normal v.h.f. signal exhibits none of these characteristics and so I venture to suggest that most so called DX working (150-300 mile range) is by a type of refraction in the lower atmosphere rather than by the more commonly accepted theory of tropospheric inversion layers. I have no doubt that inversion reflections do occur, but they account for the very much rarer path of 400 to 800 miles.

(b) Weather conditions that cause mirages occur much too rarely to be the same effect as causes v.h.f. DX but it was possible that a bending effect may be observable that could be correlated with radio propagation over a particular path.

(c) The exact nature of refraction had to be understood. I had to sit down and explain it to myself along the following lines:—

(i) Huygens Principle says in effect that a wave motion will always travel at right angles to the plane of the wave front.

(ii) Refraction occurs when a wave hits a medium of different density at an angle and is therefore slowed on one side of the wave front more than the other. In fact when you work it out light does not really travel in straight lines so much as it passes between any two points along the path that takes the least time.

(iii) A definite surface is not really necessary for refraction, a wave front travelling in a medium with any sort of uneven slowing effect will be refracted so long as it is not travelling exactly at right angles to the graduation.

(iv) Such a graduated medium exists in the atmosphere merely by the fact that air pressure is greatest near the ground and shades off eventually to nothing. A wave travelling parallel to the earth's surface will be retarded more by the denser air near the ground and so will always normally have a tendency to dip towards the surface of the earth.

(v) What is important is the pressure gradient which is sometimes less marked than normal, but quite often, more than normal at very low altitudes (up to 200-300 ft. above ground level). The books say that on cloudy, windy nights the gradient is least because the atmosphere is all more or less at the same temperature and on still sunny days for instance the pressure can change quite rapidly with heights for the first few hundred feet.

This was where my perch on the hillside started to appear useful. It seemed to me that the horizon we saw 40 odd miles away should move up and down very slightly with changing weather conditions.

I used the rifle sight principle to prove that it did in fact happen that way. One "sight" was a bolt on the t.v. aerial (it shows the "monster" is useful for something!), and the other was a graduated scale I attached to my antenna tower 50 odd feet away. Graduations were to the nearest minute of arc and I found a variation of up to 10 minutes between maximum and minimum readings. Later I moved the sight to a pair of posts the same distance apart, because the t.v. aerial seemed to be a bit too flimsy for such a thing, but got substantially the same results.

After taking readings of the position of the horizon for most of one summer, I went looking for radio signals to compare them with. Two series of records of real use that I found were contacts between Mick VK5ZDR and Herb VK3NN, and signals from Mick and George VK5GG to Jim VK5ZMJ. Several other people round the Adelaide area were able to give me reports that filled in gaps in the series. From the figures I was able to prepare graphs of:—

- (a) Height of the horizon on each day;
- (b) Signal strength over the path VK5ZDR to VK3NN on each day;
- (c) Signal strength over the path VK5ZDR to VK5ZMJ.

Since VK5ZDR had been by far the most consistent, I used other peoples' reports to fill in gaps that occurred,

reducing all reports to the signal strength that VK5ZDR would most probably have given in the circumstances.

Gaps in the graphs were many and varied, but there were about 40 points in the western path and about 20 points in the northern path that could be used to test my theory that v.h.f. radio and visible light would be similarly affected by day to day weather conditions.

With a book of instructions on statistical methods in one hand and a pencil in the other, I started preparing tables and testing the coefficient of correlation of each set of figures. My first try was to compare signal strengths on one path with that of the other. It yielded the disappointing figure of -0.093, which was not significant. Correlation coefficients are a measure of the chance of one quantity varying in step with the other; they vary between +1 and -1, the figure of +1 indicates that both quantities will always be in step, -1 means that as one gets bigger the other will always get smaller, and 0 or low numbers mean that the two are not really related to each other.

Since the weather in South Australia comes from the west and moves to the east, I reasoned that the reports from the northern path may correlate better with reports from the eastern path at a later time, so I tested a series of tables with respective time differences of 12, 24, 36 and 48 hours. The results I got were:—

Time Difference	Correlation Coefficient
0 hours	-0.093
12 "	+0.255
24 "	+0.066
36 "	-0.001
48 "	+0.079

The best estimate I can make of these figures is that all except the 12-hour difference figure are not related and the 12-hour figure is only slightly probable. None of the results showed a high enough correlation to allow me to combine the two sets of results.

My next sets of figures concerned a comparison between the path to VK3NN and the horizon measurement. In this case there were several occasions when Mick had recorded contacts on 432 MHz. as well as on 2 metres. In this case, I wished to give some weight to the 432 MHz. conditions so I divided the "S" number given by four and added it on to the "S" number recorded for 144 MHz. The graph I made was of this composite "S" number with some other minor changes when conditions were obviously exceptional. In the same way as before I worked out cor-

*C/o. H.F. Broadcast Project, P.M.G. Dept., Darwin, N.T., 5790.

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ELECTRONIC KEYERS, Katsumi EK-26	\$60	Mustang	\$130

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SPECIALS: Demonstration Transceivers, still as new, which have never left my premises—Yaesu Musen FT-DX-400, \$400; FT-DX-400-S, converted to FT-DX-560, \$400; FRONTIER Digital 500, \$500; FRONTIER Super 1200-GT, \$350.

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SPECIFICATIONS:

Frequency coverage: 144 - 145 MHz.
Sensitivity: 0.3 μ V. for 6 dB. S + N/N.
1st I.F.: 14.4 MHz.; 2nd I.F.: 455 KHz.
Bandpass Filter at 455 KHz.
Input Impedance: 50 - 75 Ohms.
Audio output: 1 watt r.m.s. into 8 ohms.
Audio output impedance: 8 or 15 ohms.

Incorporates BFO and Noise Limiter.
Supply voltage: 9 - 16 volts; negative earth.
Varicap tuned VFO.
Kit includes all Capacitors, Resistors, I.F.'s, Pots, Switches and 14 Transistors.
Front end uses TIS88s; I.F., Dual Gate Mosfets.

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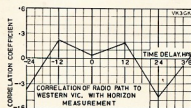
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relation coefficients for the two for a number of different time delays and obtained the figures as follows:—

Time Difference	Correlation Coefficient
Signal 24 hours before h.m.	—0.378
" 12 " " "	+0.236
" at same time as " "	+0.028
" 12 hours after " "	+0.186
" 24 " " "	—0.469
" 36 " " "	+0.040

(Without abbreviations: Radio Signal 24 hours before horizon measurement.)

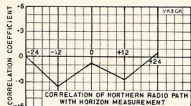


I worked the same procedure with contacts to VK5ZMJ although in this case there were no contacts on 432 MHz. and no other really unusual circumstances. The figures I obtained were:—

Time Difference	Correlation Coefficient
Signal 24 hours ahead h.m.	+0.007
" 12 " " "	—0.357
" at same time as " "	—0.081
" 12 hours behind " "	—0.269
" 24 " " "	+0.042

(Without abbreviations: Radio Signal 24 hours ahead of horizon measurement.)

The book had directions for testing the significance of these results and to the best of my knowledge it seems that most of the results are not significant, but a few of the higher ones probably are. The highest figure (—0.469) was only possible by chance once in about 20 to 300 times. The accuracy of the result increases with increasing numbers of trials and in this case there were 35 reports that could be compared. Other figures were:—



(a) When the western radio path was compared 24 hours before horizon measurement it gave a figure of —0.378 with 31 comparisons which had one chance in 20 of being random occurrence;

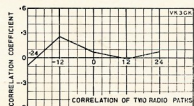
(b) When the northern path was compared 12 hours before horizon measurement it gave a figure of —0.357 in 18 trials which could have happened by chance once in about five times.

All the other measurements were less significant and therefore not worth talking about as they stood.

There was, however, one other trick that I tried. I made graphs of correlation coefficient in each case against time difference. The results shown elsewhere looked to me like a sine wave with a heavy second harmonic content so I attempted to fit them to such a thing. In the case of the graph concerning the western path, I found that by moving every sound point a distance of 0.4 in the positive direction, I got a promising fit to a curve of about 2½ days' wavelength and a peak to peak distance of 0.48. I then calculated closer approximations and ended up with a quite presentable graph.

I use an electrical analogy to make it mean something to myself along the following lines. Taking the state of certain yes (correlation +1) as one volt positive, and the state of certain no (—1) as one volt negative, I find that the curve has three components:

- A d.c. component of 0.035 volts negative;
- An a.c. component with a wavelength of 24 hours and amplitude 0.383 volt peak to peak;
- An a.c. component with wavelength 56.5 hours and amplitude 0.508 volt peak to peak.



In this case the errors of the respective points are:

1st point	0.020 (20 millivolts)
2nd "	0.000
3rd "	0.001
4th "	0.000
5th "	0.000
6th "	0.024

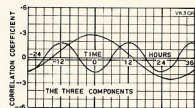
In the graph of the northern path, the figures are small for accurate calculation to be meaningful, but roughly it seems to me like a composite of:

- A d.c. component in the range of 0.1 to 0.2 negative;
- An a.c. component of 24 hours wavelength, amplitude of 0.247 peak to peak;
- An a.c. component of 55 hours wavelength, amplitude 0.18 peak to peak.

After having done all these calculations I am left wondering just what, if anything, I have discovered. I had expected that the graph of correlation against time difference would have shown a strong positive peak in one spot at about 12 hours delay instead of the negative peak found. This would have tallied fairly well with the movement of weather patterns across South Australia.

I also wonder whether I am justified in making graphs of graphs and calculations as I have done, or whether the whole thing is just so much high sounding nonsense. I would like someone of good mathematical authority to

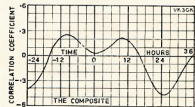
pass judgment on this point and also the significance of my method of fitting the correlation graphs to a pair of sine waves. One point I am fairly sure of is that the figure —0.469 is too high to have occurred by pure chance and requires some explanation, but just what it means has me tricked.



There was another thing I noticed. A smokey line on the horizon about a quarter of a degree wide and up to half a degree above the actual horizon. I believe it could have been some sort of mirage of the sea and it was recorded on the following dates: 23rd October, 1966, 18th February, 1967, 19th February, 1967, and 12th March, 1967.

My records show exceptionally good radio conditions on 23rd October and 18th February, unusually poor but not hopeless on 19th February and average on 12th March. I am not sure what it was in each case that caused me to record exceptional conditions on these days, but it was such things as VKTs worked into Adelaide or stations working westward from under the shadow of the Mt. Lofty ranges, all effects I regard as probably due to tropospheric reflection.

The dates on which such events occurred are also of interest, they were: 23/10/66, 15/11/66, 25/12/66, 7/1/67, 9/1/67, 20/1/67, 18/2/67, 7/3/67, and 29/3/67.



The time intervals between them were respectively: 23½ days, 40 days, 12½ days, 2½ days, 10½ days, 29 days, 17 days and 22 days. There appears to be a suggestion of repetition in these figures of a time period about 20 days or a little longer, or may be two trains of events at 40-day intervals, for instance, 10½ and 29 make 39½ days, 17 and 22 make 39 days, and one 40-day period occurs. I think what I am suggesting is that weather patterns conducive to v.h.f. DX are capable of persisting long enough to make a complete circuit of the globe and take either twenty or forty days to do it (I am not sure which). The circumference of the earth at the latitude of Adelaide is 20,480 miles, which means that a speed of 500 to 1,000 miles per day would be required. Of the two,

(Continued on Page 11)

The Solar Link*

R. A. HAM, F.R.A.S.

INTRODUCTION

The sun, like many other stars, is a nuclear furnace consuming enormous reserves of fuel and radiating energy in many forms. The apparent yellow disc on its surface, the photosphere, has a temperature of around six million degrees, and it is surrounded by a gaseous atmosphere, the corona, which extends a million miles into space and has a temperature of one million degrees. Periodically, dark patches appear on the photosphere; these are called sunspots and are some 2,000° cooler than the surrounding photosphere. Some sunspots are scarcely visible and have a short life, while others are measured in thousands of square miles and can survive a full 27-day solar rotation. Radio energy from the sun may be detected by a radio telescope; when the sun is "quiet" the radio noise detected is of thermal origin and will get stronger as the observational radio frequency is increased from 30 to 10,000 MHz., and the sun is classified "active" when sunspots are present.

The latter are usually accompanied by solar flares that look like great arches of flame when seen through special optical instruments. Very large flares are called prominences, and in July 1946 an event like this raged across 500,000 miles of the sun. Solar flares can be heard on earth with radio instruments 8.3 min. after they originate on the sun, but the particles that are ejected at the time of the event can take up to 40 hours to reach our planet. The radio frequency for detecting solar bursts and noise storms is between 30 and 300 MHz., with a peak around 150 MHz.

The sun can develop a spot at any time and produce the activity which goes with it, and the prime object of this article is to show how the sun can disturb the earth's atmosphere and consequently the earth's radio communication. Another object is to emphasise the need to record the effect of natural manifestations which take place and to send reports on them to R.S.G.B. and other organisations.

OBSERVING SOLAR ACTIVITY

The author's radio telescope was established on 1st June 1968, to observe the midday sun from 1130 to 1330 GMT daily, using a frequency of 136 MHz, with a bandwidth around 10 KHz. The observations are recorded at a high chart speed of 30"/hour so that detailed information can be gathered from the 5 ft. of chart used during a normal midday observation.

The radio telescope can observe the midday sun whether the sky is overcast

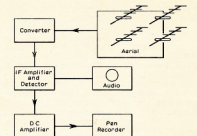


Fig. 1.—Block schematic of the author's radio telescope. The aerial is a home-built 4 by 4 element Yagi mounted on a 10 ft. x 6 ft. wood frame 1/2-inch wire mesh reflector.

The converter, mounted on the aerial reflector, is also home-built, transistorised, and operates from 12v. supply. R.F. BF100, mixer AF139, 1st osc. 36.66 MHz. and multiplier to 110 MHz., both AF139. I.f. output is 26 MHz.

The i.f. amplifier is an AR88 communications receiver, tuned to 26 MHz., which also provides detector and audio output.

The d.c. amplifier is a 709 integrated circuit, powered by 9.0-9v.

The pen recorder is an Evershed & Vignoles 0.5 mA.

or not, and the author's XYL checks the solar image for sunspots daily if the sky is clear by projecting the sun through a 7 x 50 mm. gunsight and producing drawings as shown in Fig. 2. (Warning: never endanger your eyesight by viewing the sun directly through any optical instrument, always project the image.)

It was obvious from the very early recordings that the instrument would distinguish between the individual solar burst which may last a few minutes and the continuous noise storm lasting several days. As time went by this ability to separate and identify the two events proved most valuable when making reports to the British Astronomical Association and the R.S.G.B.

An individual solar burst, illustrated in Fig. 3, is less likely to strike the earth's atmosphere because of the time lapse between the origin of the event and the particles reaching the earth, by which time the earth has moved further along its orbital path. On the other hand a long series of individual bursts or a continuous noise storm lasting several days must bombard the earth's atmosphere somewhere. Contact with the earth's atmosphere by a huge stream of solar particles can cause an aurora at either of the earth's polar regions, and a particle stream can also disturb the Appleton layer of the ionosphere and cause a temporary total loss of h.f. band radio signals, known as a Dellinger fade-out.

The author has observed many examples of solar activity and the consequent disturbance to the earth's atmosphere and has selected two of these examples from his records.

Solar recordings for 1st March, 1970, showed several large individual bursts which sent the pen full scale, plus a slight increase in the general noise level. Solar recordings for the 2nd and 3rd were similar to those of the 1st, but with a lower burst amplitude; by the 4th a full scale noise storm was in progress which died down on the 5th. Many individual low amplitude bursts were recorded on the 6th and 7th. The

climax of this period of solar activity was the great aurora on 8th March which was fully reported by Ray Flavell in the September 1970 issue of "Radio Communication" and by the author in "Electronics Weekly" of 29th April, '70.

The second example came when a mammoth sunspot appeared on the photosphere around 11th November, 1970, and remained there until the solar rotation carried it out of view on the 21st. On the 12th the radio telescope showed a marked increase in the solar noise level and the polar diagram of the telescope aerial could be seen on the chart. By switch-on at 1130 GMT on the 13th, a noise storm was raging on the sun, getting stronger on the 14th and giving almost full scale deflection on the 15th. The solar noise was so strong on the 16th that the pen was at full-scale deflection for the whole period of the observation, and this was repeated on the 17th and 18th. On the 19th the noise was three-quarter scale; on the 20th down to half scale; and on the 21st a few tiny bursts above the receiver noise level. The earth's atmosphere was bathed for 10 days in solar ejected matter and according to reports there were three Dellinger fade-outs on the 15th and 16th—from the author's observations the atmospheric noise level was very high after sunset on the 16th.

Two examples do not do justice to the value of a solar radio telescope, but they will explain what happens at the time of solar activity and the events which can follow.

THE IONOSPHERE AND THE TROPOSPHERE

Terrestrial radio communication relies upon two regions of the earth's atmosphere named the troposphere and the ionosphere, the former occupying the first 10 miles above the surface and the latter extending from 40 to 200 miles above the earth. (See propagation section of the Radio Communication Handbook for details of atmospheric reflection of radio signals.) The Heavy-side (E) layer of the ionosphere forms at sunrise and disperses at sunset, but sometimes solar activity will cause the E-layer to form or break up into patchy clouds of dense ionisation. This latter phenomenon, called Sporadic-E, will be known to the users of the 4 mX band when its normal peace is disturbed by Continental broadcast stations which use the band nearly 1,000 miles away.

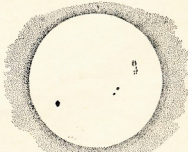


Fig. 2.—Sunspot drawing.

* Reprinted from "Radio Comm.," August 1971.

Although Sporadic-E is rarely evident above 100 MHz, on 4th July, 1965, an extensive cloud of dense ionisation centred over Europe influenced the 2 mx band, and it was fortunate that a 2 metre contest had just started and many U.K. contestants were able to work the Hungarian station HG5DKQ/P and gain the points for a 900-mile contact. Had it not have been for the contest this rare Sporadic-E opening might have gone unrecorded.

A typical large Sporadic-E occurred on 6th July, 1970, when at 0700 GMT a considerable number of Continental stations could be heard between 30 and 50 MHz. By midday the E-layer disturbance had spread its influence to the B.B.C. f.m. broadcast band and at 1430 GMT the author counted 14 Continental broadcast stations audible between 88 and 98 MHz. At 1900 GMT there was the usual interference to B.B.C. band 1 television and a large number of long distance sync. pulses around 50 MHz. The 4 mx U.K. Amateur band was impossible to use owing to the strength and bandwidth of the Continental broadcast stations. At 2000 GMT the reflecting E-layer made another change and the prevailing chaos stopped abruptly. Suspicious about this sudden end to an E-layer disturbance, the author turned his 4 mx beam north-west and for the following hour heard the 599 signal of the Icelandic beacon TF3VHF on 70.275 MHz.

Line-of-sight v.h.f. signals above 100 MHz. rely for their path on the prevailing conditions within the troposphere, which is the home of the earth's weather and this can be very hostile to v.h.f. radio signals. Apart from the attenuating effect of the weather itself, there is the thunder static which can ruin reception.

The accepted range of a v.h.f. signal under normal tropospheric conditions is between 50 and 100 miles, but under abnormal tropospheric conditions this range can be multiplied by 10. The reason for this has been the subject of many articles in "Radio Communication," and over the years the author has noticed that when the atmospheric pressure is above 30 in. and then rises again, there is a good chance of a tropo opening at the point when the pressure starts to fall. Typical examples of 2 mx openings coinciding with the pressure falling are the contests on 4th-5th March, 1967, when the band was open from GY to DJ and on 20th November, 1967, when a two-day opening brought signals from OZ to the south of England. There was a four-day tropo opening in March 1969. In May 1970 a sudden pressure drop in the

final hour of a 2 metre contest brought up the signal of HG9AEN/P. Another large tropo opening took place in November 1970.

The author conducted a three-month experiment starting on 1st June, 1969, during which the atmospheric pressure and the signal strength of GB3GW, 130 miles away, were recorded three times a day. A graph at the end of the observation showed that the signal strength of the R.S.G.B. Swansea beacon came up just before the pressure was due to fall.

The troposphere can change its condition at any time, so it is vital to have a permanent signal to observe, and the R.S.G.B. has fulfilled this need by providing several 2 metre beacons. With knowledge of the terrain between himself and the beacon an observer can tell the extent of the prevailing tropo openings, and without the beacons the v.h.f. bands for some periods would be written off as unusable. Two metre contests are very important to tropospheric studies; in addition to the personal satisfaction gained by the entrant, the contest logs are a record of v.h.f. activity and when analysed can have considerable scientific value.

SOLAR ACTIVITY AND THE WEATHER

The routine work at the author's station includes checking the 4 and 6 metre bands for ionospheric disturbance, recording the atmospheric pressure, noting the prevailing weather and checking the 2 metre band for tropospheric openings. As the daily records of solar, atmospheric and weather events were accumulated it became apparent that a new factor was emerging from them. It was seen that a relationship existed between certain types of solar activity and severe weather conditions.

Until recently the author, like many other people, was sceptical about the sun disturbing the earth's weather, despite scientific literature quoting climatic changes at the time of peak sunspot activity. But general opinion suggested that a positive connection between the sun and the earth's erratic weather had yet to be found.

To look for this connection in the station's records it was necessary to extract the solar and weather information, and to get a definite meaning into the extracted data the author decided to classify both the daily solar and weather observations into two states, **active** or **inactive**, and make a comparative table from the results. The sun was classified as **active** if some form of solar output appeared on the daily

recording charts, while the weather was classified as follows:

Inactive: Sunny, cloud, overcast, fog, frost, mist.

Active: Wind, rain, gale, snow, blizzard, thunder.

The classified sun/weather log kept from 1st June, 1968, to 30th April, 1971, produced the following set of figures:

Observation period: 1,064 days.

Sun **active**: 610 days.

Local weather **active**: 402 days.

Sun and weather **active**: 253 on the same day.

Taking a general view of this 1,064-day period one can see that the coincidence of the sun and weather being active on the same day is 253 out of 402 (62.9 per cent.), which from these figures one could expect. It is obvious that when other factors, such as solar activity outside the author's observation time and national plus international weather reports, are taken into account the percentage scale would alter considerably. However, the author believes that the type of weather classified in his records as **active** and observed from his station is representative of weather over a much larger area.

Major weather events reported by the national news media (not included in the station weather log) were noted when possible, and one can be sure that if they made national news they were something big. A closer study of the actual solar condition which coincided with these major weather upheavals revealed that a solar noise storm lasting several days was the main culprit, as the following four examples will show:

November 1970. A month of activity from both sun and weather. During the first five days many small bursts and a few large ones lasting several minutes were recorded, while the weather was on the 2nd, 3rd and 4th was wind and rain. For the next six days both the sun and weather were intermittently active until the 12th when a severe solar noise storm started and carried on until the 21st. The local weather was wind and heavy rain from the 12th to the 19th, and the rainfall, checked by the XYL, was: 13th, 1.33"; 14th, 0.83"; 15th, 0.62"; 17th, 0.39"; 18th, 0.82"; and 19th, 0.11", making a total of 4.1" for the six days which coincided with the solar storm. The national news carried the story of the severe flooding in East Pakistan, and this again coincided with the solar storm.

December 1970. The first 16 days saw little activity from the sun or weather; the radio telescope recorded a few bursts and the calm weather was interrupted by occasional rain. On the 17th a solar noise storm developed and lasted until the 23rd, and on the 17th the weather went **active**. Wind and rain developed into a white Christmas with its snow, blizzards and extreme cold. The news media reported severe blizzards in Europe and that some countries had seen snow for the first time.

January 1971. The cold weather from December was carried into the new year. The end of the cold weather came on the 6th-7th, and a few days of wind and rain prevailed. The thaw coincided with the start of a solar noise storm which lasted until the 13th.

(Continued on Page 10)

Fig. 3.
Isolated solar
bursts.



Fig. 4.
Continuous solar
noise storm.



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THE SOLAR LINK

(Continued from Page 9)

Around the peak of this solar storm the news reported freak mild weather on the 10th throughout the U.K. with record January temperatures. The sun and the weather were unsettled for the five days which followed the solar storm, and on the 18th another noise storm started and continued until the 25th. During this solar storm the weather developed, providing heavy wind and rain, severe gales, and a whirlwind in south-east England; and on the 21st the atmospheric pressure recorded by the writer was down to 973 mb. A further solar noise storm broke on the 28th and ended on the 31st, and with it came very active weather. A windy day on the 28th preceded a calm 29th, but on the 30th wind, rain and snow prevailed throughout England and Wales. The news services reported floods in Poland and severe floods in Mozambique; Australia had 9" of rain in one day, and the River Thames was in risk of flooding owing to severe gales in the North Sea.

April 1971. There were two solar noise storms during the month. The first started on the 9th and ended on the 17th during which period the new U.K. to China h.f. telephone link was delayed by "atmospheric disturbance". The news service announced on the 13th that the monsoon in East Pakistan had started a month early. A B.B.C. news report on the 21st May about the Mount Everest expedition said that the weather on the 16th-17th April on the mountain had been the worst for 72 years. From the 18th to 24th there were a few solar bursts and the weather was mainly fine apart from rain on the 23rd. On the 25th the second solar noise storm started, and on the 26th there was rain, sleet and snow across southern England with roads blocked in the West Country. The news media reported the coldest April day since records started in 1940.

ACKNOWLEDGMENTS

The author would like to make acknowledgment to the R.S.G.B. for the beacon service and to the beacon committee to ensure that a permanent signal is transmitted 24 hours each day. A word of praise also for the members who enter the v.h.f. contests, especially the portable stations that provide signals from exotic sites which are compared with prevailing atmospheric conditions; for the valuable work of members of the Scientific Services Committee who ponder and advise on the observers' reports; and for Jack Hum who in 'Four Metres and Down in "Radio Communication," reports on v.h.f. activities.

ANOTHER A.O.C.P. THEORY CLASS

Owing to demand, the Victorian Division of the W.I.A. plan to commence another theory class, to be held on Saturday mornings from 9-11 a.m.

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Development of an All-Band Vertical*

H. S. BROWN, G3RFG

On arriving at his present QTH the author found that the ground space available for the erection of aerials measured only 30 x 10 ft. and another restriction was that nothing that looked like a t.v. aerial was allowed. In order to get on the air a self-supporting mast that could be raised or lowered easily by one person was erected and it has since been used during many aerial experiments. As a result of these experiments it became obvious that what was required was an all-band vertical that produced low impedance at its base for all bands, and the result is shown in Fig. 1.

The aerial is made up of three lengths of aluminium tubing 12 ft. long, with 1/16" walls, and of 1", 3/8" and 1/2" diameter respectively. One end of each of the two thicker tubes is slit down for several inches and the three lengths are then spliced together, the joints being secured by two Jubilee clips. A triangular piece of thick Perspex is fitted between the top two clips, and three lengths of thin nylon cord are connected to it as guys to prevent movement of the top section of the aerial. An 8 ft. 3 in. length (quarter-wave on 10 metres) is cut from the lower 1" diameter section and the two resulting lengths are secured to the mast, one above the other and 2" apart, by stand-off insulators.

The 2" break in the aerial is then linked and a check made for resonance on the 40 and 15 metre bands. The link is then replaced by the coil and the taps adjusted for resonance on 20, 80 and top band. If an impedance bridge is used it will be found that it will indicate approximately 25 ohms on 40 metres and 35 ohms on 15 metres. It was decided to use two lengths of 75 ohm co-axial cable in parallel to provide the best match on 15 metres because of the greater output power on 40 metres from the author's transmitter.

On 10 metres the aerial can be used as a normal vertical; by removing the base feeder and connecting a length of 75 ohm co-axial cable to the junction it becomes a vertical dipole; and by earthing the lower section and feeding the junction with 50 ohm co-axial cable it becomes an elevated-feed three-quarter-wave vertical.

The earthing system consists of as many earth rods as possible connected together with thick seven-stranded copper aerial wire. It was also found

that t.v.i. could be decreased if a length of this earth-wire was run parallel with the feeder from the base of the aerial right back to the Z Match. The author's feeder is run underground as far as is possible.

Over a period of two years this aerial has proved a winner and it is only necessary to stand on a step ladder in order to change bands; by inserting the link or connecting the appropriate fly-leads from the coil which is attached to the mast by stand-off insulators.

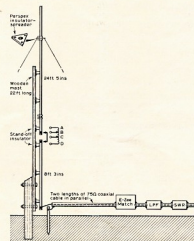


Fig. 1.

COIL DETAILS

It is recommended that anyone who constructs this aerial should use a g.d.o. to find the exact taps on their coils for resonance on the various bands, but the following coil construction details are supplied as a basis. A ribbed ceramic former of 2" diameter is wound with 55 turns of 20 s.w.g. tinned copper wire. The first 40 turns are spaced 1/10" apart, and the bottom 15 turns are close wound and enamel covered. Fly-leads are connected to the top, 22 turns down (for three-quarter wave on 20 metres), 29 turns down for 80 metres, and at the bottom for top band.

S.W.R.

Link out, Coil out	$\frac{1}{2}\lambda$ on 10 mx*	1:6
Link in	$\frac{1}{2}\lambda$ on 40 mx	1:1
Link in	$\frac{1}{2}\lambda$ on 15 mx	1:4
Coil in, A to B	$\frac{1}{2}\lambda$ on 20 mx	1:2
Coil in, A to C	$\frac{1}{2}\lambda$ on 80 mx	1:4
Coil in, A to D	$\frac{1}{2}\lambda$ on 160 mx	1:4

* On 10 metres the aerial can be used in two other ways:

- Disconnect the base feeder and use a 75 ohm feeder connected to the junction. This is now a vertical full-wave dipole. S.W.R. is 1:6.
- Earth the lower section and connect a 50 ohm feeder to the junction to make an elevated feed three-quarter wave vertical. The S.W.R. is 1:4.

A BIT OF LIGHT NONSENSE

(Continued from Page 7)

the smaller, corresponding to a 40-day period, is fairly close to the actual rate of progress of weather across the State.

There are no really definite conclusions to be drawn from all this. I don't regard the job as finished, but as a pointer to more exact experiments with better control of conditions. I think it not silly to say that if taken far enough it could lead to information as valuable as that on which the Ionospheric Prediction Service relies for its work. The subject should be an ideal one for somebody who wants material for a thesis and could be expanded to include comparison of propagation of different bands. As a first step, I should think the correlation would be very much higher for signals of different frequencies over the same path. Another refinement of interest would be to measure path loss against distance to find whether better conditions cause stronger signals over short distances at the same time as they cause the maximum distance of usable signals to be increased.

In conclusion, I offer my thanks to all who allowed me to search their log books and wish good hunting to anyone who can take this project a step further.



PROJECT AUSTRALIS REPORT

A.M.S.A.T. have now advised W.I.A. Project Australis that the frequencies to be used for the A-O-B Satellite are as follows:—

- VK Translator System:**
Uplink—145.80, 145.85, 145.90, 145.95 MHz
Downlink—435.10, 435.15, 435.20, 435.25 MHz
- DJ Translator:**
Uplink—To be decided.
Downlink—145.90 MHz.
- A.M.S.A.T. Translator:**
Uplink—145.90 MHz.
Downlink—29.50 MHz.

The Australia-wide f.m. Repeater and Simplex channels in the 2 metre band are:

Repeaters—	In MHz.	Out MHz.
Channel 1	146.1	145.8 Secondary
" 2	146.2	145.7 Future
" 3	146.3	145.8
" 4	146.4	145.9 Primary
Simplex—		
Channel A	145.854	
" B	146.000	Primary
" C	146.146	

The possible solutions to these frequency conflicts proposed by the Australian Group are:

- Changing the satellite channels.
- Changing the VK repeater channel frequencies.
- Turning off the VK repeaters during each pass of the satellites.

Solution (c) would appear, at this stage, to be the only practical way of solving the problem, as the satellite frequencies are an optimisation of frequency conflicts all over the world.

A modified "demonstrator" version of one channel of the VK translator is being sent to A.M.S.A.T. for testing on 20th August. If A.M.S.A.T. are satisfied that it meets N.A.S.A.'s rigid performance specifications, the Australis Group will begin construction of the flight units.

The flight units of the A-O-B 60-channel r.t.t.y. telemetry system and the 35-channel command system are nearing completion and should be shipped to A.M.S.A.T. in Washington next month.

The launching of the A-O-B satellite will take place, it is hoped, about the middle of 1972.

—Richard Tonkin, Chairman, W.I.A. Project Australis.

(All comments on the frequency conflicts listed above should be sent in the first instance to the Federal Repeater Secretariat, C/o. Tim Mills, VK2ZTM.—Ed.)

* Reprinted from "Radio Comm.," August 1971.

Getting to know your Neighbour

HOWARD RIDER* VK3ZJY

On Sunday, 27th June—having been in Djakarta for two days—I decided it was high time that I met some of the Amateur fraternity. Armed with a single name—K. W. Kwik—who lived at Djalau Maluku 52, which, according to my map, was close to the hotel in which I was staying, I set out not quite knowing where I would finish.

Finding the house was not as difficult as I had expected. A notice proudly stating this was the home of YBOCJ was well in evidence. In a very short time I was seated in the lounge room sipping tea and discussing common and specific interests of Amateur Radio with Kwik and his wife. The latter was not only interested but very knowledgeable in this field.

I learned of the general operation, various regions, regulations and examination procedure which will be described later. Besides being QSL manager for the Djakarta region (YB0), Kwik was also one of the Examination Officers, so my start could not have been at a better place.

A phone call and I was taken out to meet the President of the group—Suwondo (Wondo) YB0AT. He added to my already extensive set of notes and I learned that I had just missed an old friend, I. N. Dar (VU2BX), with whom I had spent many an enjoyable hour when living in New Delhi.

Many miles further on we visited the home of R. A. J. Lumenta Kaklum, YB0BY, whose call sign is a very well known one. I was a little surprised to learn that his wife was Secretary of the local group and more still when I found that she was YD0HV (Erica). Sidik (YC0DH) was also a visitor, so we all sat down together and had supper.

Coffee naturally was served in the "shack" where a couple of contacts were made with YB2AJ and a JA. This was an important occasion as they would be the last ones to be made in this country for fourteen days. Because of the advent of National elections, the Amateurs had decided to maintain radio silence from one week before to one week after this period. This was not requested by the government but was a voluntary decision.

As the evening wore on we talked further of the peculiarities and problems common to both countries, particularly with regard to distances. Two VKs were already well known—Hebbie VK2AQK and Ron VK3AHJ. Beautifully bound copies of many issues of "Amateur Radio" and an Australian electronics magazine were produced, giving further evidence of unseen friends in VK-land.

Some six hours after my initial meeting with Kwik and his wife I was driven back to my hotel. During this whole period I had found great warmth and generosity in the friendliness and

hospitality offered to me, remembering that I had arrived unannounced and unexpected.

What then constitutes the Indonesian Radio Amateur? During the evening I had met people ranging from a Major-General in the Air Force, a retired businessman, an engineering manager, a housewife to an odd-job man—proving that in this country also Amateur Radio is not for the chosen moneyed few but for all who have an interest and the ability to learn and pass the examination.

The examination is not an easy one, in many respects harder than ours. It is divided into three graded levels:

- (a) **Preliminary Level.**—A knowledge of local and international regulations, theory, practice and Morse at 5 w.p.m. will gain a limited licence (YD), enabling crystal controlled operation between 3.5 and 3.9 MHz. at 10 watts maximum input.
- (b) **Intermediate Level.**—An increased knowledge of the above plus Morse at 8 w.p.m. and an ability to understand the English language will allow for a limited licence (YC) with crystal controlled operation in the h.f. (except 14 MHz.), v.h.f. and u.h.f. bands at a maximum of 75 watts input.
- (c) **Advanced Level.**—Further knowledge of the above plus Morse at 12 w.p.m. will allow a full licence (YB) on all bands at a maximum input of 500 watts.

It is interesting to note that Morse code is a requirement in all levels and a good working knowledge of English in the higher two sections. Part of the practical test is the actual building of a transmitter by the applicant.

Although the Indonesian Government has considered and approved regulations and technical qualifications needed by an operator and his station (1967/68), it has for the moment delegated the authority of examination procedure to the Regional Groups of which there are nine. As can be expected, these Groups keep a very tight rein on those wishing to obtain a licence and the operation when actually on the air because they do not wish to lose any of the advantages given to them.

Even so, there are over 2,000 Amateurs in the whole of Indonesia (approximately 250 in Djakarta). Why then do we not hear more of them on the air? The answer is mainly a monetary one. Most rigs are on the 3.5 MHz. band and are a.m. types. Those owning commercial s.s.b. equipment in the country total fifteen (excluding expatriates) of which I had seen three in one evening.

Unlike many other countries, Indonesia is radio minded. A few years ago Kaklum (YB0BY) started teaching

four persons the fundamentals once a week of about two hours duration. Early this year he had to give up this undertaking because of a change in his work plus the fact that the group had grown to more than 130 per session. Five other Amateurs have taken over this important task.

While all that I have mentioned so far gives a very promising future for Amateur Radio in Indonesia, it must not be thought that there are no problems. In fact, the reverse is the case and the problems are great. While there are people like Kwik, Wondo, Kaklum and Erica, plus many more I have yet to meet, these problems will slowly be overcome. There is much that we, through the W.I.A. and personally, can do to help the movement in this rapidly developing nation.

It is obvious that my life in YB-land, which will last at least a year, will become a very interesting one radio-wise as my main work will take me to all regions and to Amateurs whose total income per year is less than the average Australian gets per week.

★

JAPANESE TRANSISTORS

Through the courtesy of Peter Williams, VK3IZ, "A.R." now possesses specifications and ratings of a number of Japanese FETs, v.h.f. and p.a. transistors. He believes that many Amateurs possessing Japanese equipment may be interested in these ratings if replacements are required at any time. The lists run into several pages, mixed in with Japanese calligraphy and are by courtesy of the "CQ" (J.A.R.L.) Handbook.

If any reader is interested in any of this information, would he please write to the Editor giving type number so that in a future issue it may be possible to extract data of the more popular varieties for publication in "A.R."

★

ERRATUM

Re the article "Angle Modulation", Lecture 14B, in "A.R." August 1971, page 3. The author has pointed out that a few lines have been omitted from the first paragraph under the heading Frequency Modulation in column 1. The paragraph should read:

When using an audio frequency voltage to produce f.m. it is the amplitude of the voltage which causes the carrier frequency to shift or deviate symmetrically from its assigned frequency. By international agreement the maximum deviation is ± 75 KHz. for sound broadcasting with an audio frequency pre-emphasis of 75 micro-seconds. However, in Australia for television sound the maximum deviation is ± 50 KHz. and audio frequency pre-emphasis of 50 micro-seconds.

* 232 Cumberland Road, Pascoe Vale, Vic., 3044.

REPEATER SECRETARIAT

We have been advised from VK2 that additional repeater systems are being developed at the moment and some have been lodged with the P.M.G. for approval.

Central Coast, Gosford. To serve the area north of the Hawkesbury River, south of Lake Macquarie and east to the coast from the Pacific Highway. The equipment is to be installed at the local clubroom site, which is about 4 miles south-west of Gosford on a ridge of high ground. To avoid interference in Sydney to the expected strong signals from Wollongong, the antennas will have reduced gain in the southern direction. It will be a Channel 1 system.

Central West, Orange. This system has been operating for some years and is located on Mt. Canobolas. At the moment it is a Channel 1 input with a Channel A output.

Illawarra Branch (Wollongong) of the N.S.W. Div. is to establish a Channel 1 repeater some 60 miles south of Sydney. It will serve parts of Sydney, Wollongong, the south coast towards Batemans Bay, inland towards Canberra, which will cover much of the Hume Highway from Liverpool to Goulburn and on towards Yass. The repeater will be tested in the Wollongong area first and later it is hoped to install it on the high ground west of Katoomba near the local t.v. station. There is also a plan to establish a 6 mhz beacon in the Wollongong area.

Hunter Branch, Newcastle. Permission has been granted to establish a Channel 4 system for this area on Mt. Sugarloaf. It is to be installed at the local t.v. tower site.

Sydney. The Channel 4 system for this area is currently using an A.W.A. tx in place of the previously advised S.T.C. unit. The original beacon facilities have not been included at this stage. Identification is by a voice tape loop, but will be replaced by an IC keyer.

Wagga Radio Club is to establish a Channel 1 system to serve the eastern Riverina. At the time these notes were compiled the final site was not known to us. The equipment is expected to be low powered and solid state.

Another problem area is Melbourne and possibly Sydney where several repeaters are (or will be) operating. The original 3-channel concept of Wodonga (1969) was for Channel B simplex and Channels 1 and 4 for repeaters. The reason behind this was to ensure that all "service" repeaters (like the present f.m. system) were developed on the minimum number of channels so that the maximum of people would have the required crystals and accordingly be able to use the system no matter what part of Australia one travelled to.

The problem has arisen in Melbourne where they have Channel 1. To the east in Gippsland and to the south-west at Geelong there are Channel 4 systems. It will not be long perhaps before a system could be required to the north. The Channel 4 systems both have good coverage into Melbourne with the result that one is often able to trigger both units. The question to be resolved is: (a) should there be additional channels? (b) should the coverage of overlapping systems be reduced to limit interference? (c) or put up with the problem, if not too severe, so as to preserve the two-channel concept? What do you think?

The F.R.S. Report mentioned in recent "A.R.'s" was delayed in publication, but should be in circulation by the time these notes come out. The Federal Repeater Secretariat is a committee of three members who act on behalf of F.E. in co-ordination of v.h.f./u.h.f. matters with repeaters, beacons, nets and satellites, etc. The postal address for the F.R.S. is C/o P.O. Box 342, Crows Nest, N.S.W., 2065.

Looking forward to hearing Amateurs' views on the points covered in this report, but please bear with us if we are a little slow in the reply, we usually have trouble in rounding up a good one-fingered typist.

A service to members only

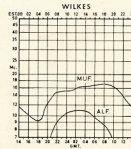
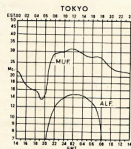
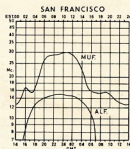
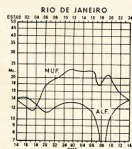
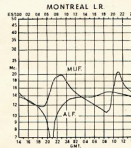
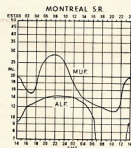
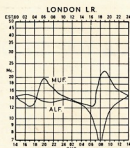
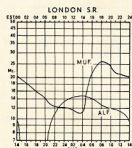
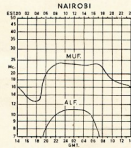
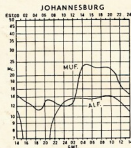
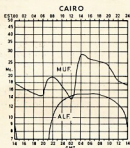
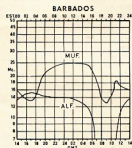
COMPONENTS FOR HOME-BREW GEAR

For lists of components actually available from stock, write to—

THE DISPOSALS COMMITTEE,
VICTORIAN DIVISION, W.I.A.,
P.O. BOX 65,
MT. WAVERLEY, VIC., 3149.

PREDICTION CHARTS FOR OCTOBER 1971

[Prediction Charts by courtesy of Ionospheric Prediction Service]



OBSERVATION POST

By H. F. Everlick

"There is more in heaven and earth, Horatio, than is dreamt of in your philosophy."

How many times have you read a reason d'être for Amateur Radio? When frequencies come up for discussion there are always people who are ready to say Amateur Radio is finished, washed up, kaput.

They say the shiny black box has killed the art.

They believe that a number of Amateurs today cannot even service their shiny black boxes; and, even if they could, they would rot dare do so for fear of depreciating the re-sale value.

Others come up with the argument that commerce is way ahead of us and what's more will become even further ahead as the result of research and exploitation of new techniques.

Stop a moment. Has it really been any different? Were all the pioneers of electricity and electronics Amateurs? Did an Amateur invent and develop the semiconductor? And what about all those old time sets? I can remember many an old time piece of commercial gear. I must admit though that the percentage of home-brewing was higher yesterday. But set against this, the number of Amateurs was very considerably less. How many Amateurs were licensed in 1938 compared with today—a tenth, maybe less.

Yes, you will say, in those days we did all our own metal bashing. This was after the breadboard went out of favour and components had to be cut and soldered, and wire was used instead of screw-type connectors. The hook-up wire per se disappeared. Commerce developed the gimmicks, you will say, and we Amateurs merely followed suit. Along came disposals gear which we merely adapted to our own purposes. We followed the techniques of printed boards; many of us have thrown up a row of ICs and hey presto, there is a receiver ready to go. No need to bother with modules even.

Now we need slim fingers, pencil point soldering irons and a magnifying glass for constructional work. Heavens above! I do believe we even buy printed circuit boards all made up ready to solder in the appropriate components. Before long the commercials go ahead and become ever more specialised. What a splendid thing this is for us.

Yes, I do not doubt the facts. Rather than becoming pessimistic about all these trends, however, feel a little optimism coming on. It is good that the commercials go ahead and become ever more specialised. What a splendid thing this is for us.

Make no mistake. We Amateurs are still the only mob who not only communicate around the globe, but, to a large extent, can hopefully keep our gear pushing out the warts and our receivers bringing in the intelligence under all kinds of adverse and difficult conditions. The specialist must ever strive beyond his horizon but nevertheless must keep his feet on the ground. What better way for him to keep in touch with ordinary mortals than through Amateur Radio which is a blending of a whole range of skills, specialised and ordinary. Amateur Radio is unique and limitless as someone said the other day.

It is not solely a question that the world needs people doing something for no cash reward. Without the Amateur Service and its influence the electronics business might not be where it is today. There is constant feed back between the two. By definition the specialist concentrates on one field of activity. By his achievements in many diverse spheres of activity is the Amateur known.

LICENSED AMATEURS IN VK

JUNE 1971

	Full	Lim.	Total
VK0	11	1	12
VK1	85	30	115
VK2	1420	487	1907
VK3	1213	861	1871
VK4	520	204	727
VK5	519	227	746
VK6	397	128	565
VK7	156	65	221
VK8	37	12	49
VK9	86	11	99
	4516	1836	6352
			Grand Total

THE SOUTHERN CROSS AWARD

The Southern Cross Award was instigated on 1st July this year to promote more activity on all Amateur bands. The Award is prominently Australian by its name, the colours being green and gold.

Conditions of Award: Australians and New Zealanders to work 15 members of the Eastern and Mountain District Radio Club. DX stations to work five members of the Club, or three members of the Club plus VK3ER—the official Club Station, which counts as two contacts.

This Award is open to all Amateurs and S.W.'s. Band and mode endorsements are available.

Australian Amateurs must forward the sum of 50c with their application. Overseas applicants must enclose eight IRCs. This Award is free to the legally paralysed or the blind.

Applications are by an extract of the log only, countersigned by two other licensed Amateurs, being sent to the Awards Manager, Eastern and District Radio Club, P.O. Box 87, Mitcham, Vic., 3132.

As this Award follows the Certificate Hunters Club conditions it will count for C.H.C. credits.

VK3ER is active on all h.f. bands, 144 MHz. a.m. and f.m.

DISTANCE TABLE FOR ROSS HULL MEMORIAL V.H.F. CONTEST

Computer Great Circle distances with first order corrections for non-spherical earth shape. Accuracy ± 2 miles.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	0	1172	828	2019	1001	566	1905	1636	1827	394	722	644	408	238	758	1328	1075	720	1198	2003	698
2	1172	0	1235	3141	2133	1760	2839	1756	2817	1486	1665	1642	1515	1286	1490	239	2116	1891	2074	3071	1867
3	828	1235	0	2586	1219	1217	2589	809	2550	1719	1534	1445	1175	1061	1280	1281	1057	1262	888	2647	1294
4	2019	3141	2586	0	1434	1434	472	3207	658	1659	1508	1509	1634	1860	1331	3328	1719	1344	2086	302	1352
5	1001	2133	1219	1434	0	569	1571	1773	1770	901	1126	1032	864	1018	1035	2248	313	471	848	1569	598
6	566	1760	1217	1434	569	0	1375	1059	1333	327	535	437	290	486	233	1924	830	150	1122	1447	116
7	1905	2839	2589	472	1571	1375	0	3292	192	1515	1274	1307	1500	1707	1347	1719	1880	1332	2254	190	1326
8	1636	1756	809	3207	1773	1059	3292	0	3290	1973	2332	2239	1905	1866	1946	1654	1506	1968	1168	321	1801
9	1827	2817	2550	658	1770	1333	192	3290	0	1434	1611	1205	1422	1617	1337	3031	1916	1312	2285	383	1300
10	394	1486	1719	1659	901	327	1515	1073	1434	0	360	286	39	200	459	1069	1085	478	1319	1621	443
11	722	1665	1534	1508	1126	535	1274	2332	1161	360	0	103	374	490	732	1873	1364	658	1639	1409	617
12	644	1642	1445	1509	1032	437	1307	2239	1205	266	103	0	275	418	841	1943	1264	564	1536	1431	526
13	408	1515	1175	1634	864	290	1500	1965	1422	39	374	275	0	229	512	1895	1051	440	1287	1602	405
14	238	1286	1061	1860	1018	486	1707	1868	1617	200	459	418	229	0	707	1469	1156	642	1339	1817	511
15	758	1940	1250	1331	395	223	1347	1948	1337	549	732	641	512	707	0	2090	665	77	996	1506	116
16	1328	239	1241	3328	2248	1924	3147	1654	3031	1689	1873	1843	1995	1469	2090	0	2198	2047	2114	3273	3202
17	1075	2116	1057	1719	313	830	1860	1506	1916	1085	1364	1284	1051	1156	695	2198	0	731	375	1871	765
18	720	1891	1262	1344	471	150	1332	1968	1312	478	656	584	440	732	1873	1364	731	0	1052	1385	101
19	1198	2074	888	2068	694	1122	2524	1168	2265	1319	1639	1330	1287	1339	996	2114	375	1052	0	2245	1081
20	2003	3071	2647	302	1589	1447	190	3321	363	1621	1469	1431	1902	1817	1506	3273	1871	2245	2245	0	1385
21	698	1867	1294	302	1589	1447	190	3321	363	1621	1469	1431	1902	1817	1506	3273	1871	2245	2245	1385	0

1—Adelaide

5—Brisbane

9—Dunedin

14—Mt. Gambier

18—Sydney

2—Albany

6—Canberra

10—Geelong

15—Newcastle

19—Townsville

3—Alice Springs

7—Christchurch

11—Hobart

16—Perth

20—Wellington

4—Auckland

8—Darwin

12—Launceston

17—Rockhampton

21—Wollongong

LET US HELP YOU GET ON THE AIR—NOW!

Complete VHF Station consisting of INOUE ICOM IC20, MAICO PSVR1 AC Power Supply to suit, STOLLE ROTATOR, 44 ft. tilt-over Telescopic Tower, 10 Element 2 Metre Beam, EVEREST 2 Metre 5/8 Mobile Whip—all for \$6.00 per week.

COMM. RECEIVERS: Realistic DX150A, \$234.20, \$3.00 per week. Trio 9R59DS \$178.50, \$3.00 per week.

These credit facilities are available throughout the Commonwealth

Stolle Rotators \$55. 2 mx 10 el. Yagi \$20. Maico PSVR1 240v. AC, 13.5v. 2.5a. DC Power Supply for solid state 2 mx TRSV, \$41.50. Maico PS2 240v. AC, 13.5v. 8a. Power Supply for Carphone as Base Station operation, \$33. Everest 2 mx 5/8 Mobile Whip (state base thread) \$16, with base \$20. 2 mx 1/4 wave RF Whips, RMW/2S, complete, \$7.50. Knock-Down Adaptor, \$7.14. Spring-Back Adaptor, \$5.52. Roof Mount Base, \$3.55. 432 MHz. Roof Whip 5/8 wave, RMW-311/L, \$13.66. Rechargeable Alkaline Cells, size D, \$2 each.

Industrial and Medical Electronic Co.

6th Floor, 288 LITTLE COLLINS STREET, MELBOURNE, VIC., 3000
Phone 63-9258, A.H. 848-3018. Distributors for TEXTRON Group of Companies. See adv., p. 2

ROSS HULL MEMORIAL VHF/UHF CONTEST, 1971-72

The Federal Contest Committee of the Wireless Institute of Australia invites all Australian and Overseas Amateurs and Short Wave Listeners to participate in this annual Contest which is held to perpetuate the memory of Ross Hull whose interest in v.h.f./u.h.f. did much to advance the art.

A Perpetual Trophy is awarded annually for competition between members of the W.I.A. in Australia and its Territories, inscribed with the name and life work of the man whom it honours. The name of the winning member of the W.I.A. each year is also inscribed on the Trophy. In addition, this member will receive a suitably inscribed certificate.

We welcome proposals (in writing) to improve this Contest.

OBJECTS

Australian Amateurs will endeavour to contact as many other Amateurs in VK Call Areas and Foreign Call Areas under the following conditions.

DATE OF CONTEST

From 0001 hours E.A.S.T., 11th December, 1971, to 2359 hours E.A.S.T., 23rd January, 1972.

DURATION

Any seven calendar days within the dates mentioned above, not necessarily consecutive. These periods are to be at the operator's convenience. A calendar day is from 0001 hours E.A.S.T. to 2359 hours E.A.S.T.

RULES

1. There are two divisions, one of 48 hours duration, and one for seven days. In the seven-day division, there are four sections:—

- Transmitting, Open.
- Transmitting, Phone.
- Transmitting, C.W.
- Receiving, Open.

2. All Australian and Overseas Amateurs may enter for the Contest whether their stations are fixed, portable or mobile.

3. All Amateur v.h.f./u.h.f. bands may be used, but no cross-band operating is permitted. Operators are cautioned against operating transmitting equipment on more than one frequency at a time, particularly when passing cyphers. Cross-band operation to assist contest working is prohibited.

Such operation will be grounds for disqualification. Cross mode contacts will be permitted.

4. Amateurs may enter for any of the transmitting sections. The seven-day winner is not eligible for the 48-hour award.

5. Only one contact per band per station is allowed each calendar day.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a contestant and must submit a separate log under his own call sign.

7. Entrants must operate within the terms of their licences.

8. Cyphers: Before points may be claimed for a contact, serial numbers must be exchanged. The serial numbers of five or six figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures, commencing in the range 001 to 999, for the first contact, and will then increase in value by one for each successive contact. When a contestant reaches 999 he will then commence again with 001.

9. Entries must be set out as shown in the example, using only one side of the paper. Entries must be post-marked not later than 7th February, 1972, and clearly marked "Ross Hull Contest" and addressed to Federal Contest Manager, Box 638, G.P.O., Brisbane, Qld., 4001.

10. Scoring for all sections will be based on the attached table. Approx. distances to be shown in the log entry as shown in the example. Failure to make this entry will invalidate the particular claim. Operation via active repeaters or translators is not allowed for scoring purposes.

11. Logs: All logs shall be set out as in the example and in addition will carry a summary sheet showing the following information:

Name.....Call Sign.....
Address.....Division.....
.....Claimed Score.....

SCORING TABLE

Distance in Miles	52 Mc.	144 Mc.	420 Mc.	576 Mc.	Higher
Up to 25 Miles	1	1	2	5	10
25 to 50 "	1	1	5	10	25
51 to 100 "	5	5	15	30	50
101 to 200 "	10	10	25	50	100
201 to 300 "	25	15	50	150	250
301 to 500 "	20	25	100	250	300
501 to 1000 "	10	35	200	300	350
1001 to 1500 "	15	100	250	350	400
1501 to 2500 "	25	125	300	450	500
2501 to 3500 "	35	200	400	500	600
3501 to 5000 "	50	300	450	550	650
5001 and over	100	400	500	600	700

Operating Dates.....(7 cal. days)
Highest Score over a 48-hour period was.....points.

Operating period: from.....hrs. E.A.S.T. /...../7..... to.....hrs. E.A.S.T. /...../7.....

Declaration: I hereby certify that I have operated in accordance with the conditions of my licence and abided by the Rules of the Contest.

Signed.....
Date.....
12. Entrants not abiding by the Rules of this Contest will be disqualified.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. Awards: Certificates will be awarded to the winners of each section in each VK and Overseas Call Area. The VK contestant who returns the highest score in the transmitting section and who is a financial member of the W.I.A., will have his name inscribed on the Trophy which will be held by his Division for the prescribed period. A Certificate will be awarded to the contestant who shall not be the Trophy winner, and who returns the highest scoring log covering a period of any 48 consecutive hours.

Also, Certificates will be awarded for operating in the Ross Hull Contest and breaking any Australian v.h.f./u.h.f. distance record.

RECEIVING SECTION

1. Short Wave Listeners in Australia and Overseas may enter for the Contest, but no transmitting station may enter this Section.

2. Contest times, logging of stations on each band are as for the transmitting sections, however there is no 48 hour sub-section.

3. To count for points, logs will take the same form as for transmitting sections, but will omit the serial number received. Logs must show the call sign of the station heard (not the station worked), the serial number sent by it, and the call sign of the station being worked.

Scoring will be on the same basis as for transmitting stations, i.e. on the distance between the Listener's station and the station heard. See the examples given. It is not sufficient to log a station calling CQ.

4. A station heard may be logged only once per calendar day on each band for scoring purposes.

5. Awards: A Certificate will be awarded to the highest scorer in Australia or Territories.

EXAMPLE OF TRANSMITTING LOG (Brisbane Station)

Date/Time E.A.S.T.	Band Mc.	Emission Power	Call Sign	RST/No. Sent	RST/No. Rcvd.	Dist. Miles	Points Claim.
24th Dec. 0100 E.A.S.T.	52	A3(a)	VK7ZAI	59001	59004	1110	15
0110 E.A.S.T.	52	A3(a)	VK4NG	59002	57051	330	20
0230 E.A.S.T.	144	A3	VK5ZK	59003	55043	990	35
0235 E.A.S.T.	144	A3	VK3JQ	45004	46021	850	35

EXAMPLE OF RECEIVING LOG (Perth S.w.I.)

Date/Time E.A.S.T.	Band Mc.	Call Heard	RST/No. Sent	Station Called	Dist. Miles	Points Claimed
2nd Jan. 1000 E.A.S.T.	52	VK5ZDX	59221	VK8KK	1330	15
1025 E.A.S.T.	52	VK2ZCF	58195	VK6ZAA	2040	25
1110 E.A.S.T.	432	VK6ZDS/6	57061	VK6LK/6	60	15
3rd Jan. 0500 E.A.S.T.	144	VK5ZHU	44102	VK6ZGN	1330	100

NOVICE LICENSING

Editor "A.R.," Dear Sir,

I would like to make some comments regarding the proposed W.I.A. approach on Novice Licences. Many excellent comments against the proposed W.I.A. have been received, and the July "Amateur Radio," and I can do no more than agree with them, except that it is not the W.I.A. which is the cause of the trouble in t.v.i. The main cause of the increased t.v.i. from Amateur stations, in most cases, is the use of the 100-watt limit. The W.I.A. is the plain fact is that high power, and suburban living, just do not go together. It seems to me that the only way to solve the problem is to legal limit, and t.v.i. is the result. Low powered c.w. operation very seldom causes t.v.i., and the only way to solve the problem is to ribbon, poor contacts in their tuners, and so on. Amateurs must accept that many t.v. and radio-freaks are going to be with us, and the only way to continue the operation of the station without violent arguments with the neighbors is to keep the power at a low power level. RG-6. However, degress.

The first comment regarding Novices is that I do not see why a Limited licensee should have Novice privileges on passing a slow c.w. test. He is not a Novice; he proved that by passing a higher standard licence examination. I would like to see Limited licensees allowed to use c.w. on v.h.f. I do not see what harm it could do, and it would certainly allow them much needed practice for the full exam. It would also allow them to work v.h.f. DX which is often available if only the apparently weak carriers were keyed, instead of being modulated.

I also do not see any great need for Novice licensing if a change was made in the form of the exam. Multiple choice questions, such as used by I.B.M. in their preselection exams, would enable persons to pass the exam, who are presently hampered by their inability to express themselves on paper. Furthermore, a multiple choice answer system enables the examiner to set more questions, and thus get a far better idea of the standard of knowledge of candidates than the setting of a few essay questions.

The other points against Novice licensing, such as P.M.G. control, possible piracy after the expiry of the licence, etc., are all valid, and make a convincing argument against Novices. Our present exam. is not really very hard, when compared with other Commonwealth countries; and in any case, what does Amateur Radio want? Quantity or quality in its members?

Finally, I must protest most strongly at the proposed frequency allocation for Novices. They are, of course, going to be accommodated in the "c.w. bands," that is, the portions of the bands traditionally c.w.-by Gentlemen's Agreement. Thus the poor c.w. operator, already limited in his operating to approximately quarter-wave antennas, will have to battle Novices as well as the odd phone operator who slips down for a quiet spot to work in. What is more, the Novices will be crowded into the 3.5 and 7 MHz. prime spots in the normal DX sections of the c.w. bands, that is, near the low ends. By the time we take out commercial stations in the 3.5 MHz. band, we would find he has nowhere to go there and virtually nowhere to go on 3.5 MHz. On 3.5 and 7 MHz., 3535-3550 and 7025-7050 Novices will be crowded out. I am sure that the FCC, which, of course, I hope we do not

Finally, it may perhaps be pertinent to point out that it appears that W.I.A. members are very much divided on Novice licensing, and that much of the pressure for it comes from small groups. When taken as a percentage of the total licensed Amateurs of Australia, these people are very much in a minority; as I understand that the W.I.A. membership is somewhere between 50 and 60% of all licensees.

If Novice licensing is proposed to the P.M.G., for one, I will raise my voice against it, by writing to the P.M.G., and putting the case for many non-members whose voice for and against Novice has a right to be heard. However, I think that there will be no need for this, for, with a few revisions in the present system of exams and licensing privileges, all parties could be satisfied without Novice licensing.

—John H. Smith, VK3IQ.

P.S.—It may also not be out of place to point out that in the U.S.A., on 3.5 and 7 MHz., there is much more room for Novices, seeing that the bands there are 3500-4000 KHz. and 7000-7300 KHz.

Editor "A.R.," Dear Sir,

As the subject of Novice licensing is with us and is still open to plenty of discussion (and opinion), I felt urged, and to a degree motivated by VK3RN's well set out letter, to give my opinion on the subject.

The fact that I am going against introduction of Novice licensing in its present form was not due entirely to the abovementioned letter, but some of the points raised are well worth deeper thought before we accept or reject Novice licensing.

I want to base my argument on fairly practical aspects. Currently a person may obtain a Limited/Full licence at the age of 15, certainly quite old enough to be in the position of operating equipment capable of spanning the globe and communicating without supervision, in a proper manner. Whatever, Limited or Full licence, a 15-year-old boy is at a pretty important stage of his schooling, and I would venture without some "parental controls" would get involved to the detriment of his studies if left on his own.

On the equipment side, there are boundless possibilities. Dad may have a station that son can operate. The boy might be able to talk to Dad and/or Mum in a secondhand radio. Dad may have a triband or a Big Boy. Christmas and so we go. Then some means of radiating and receiving. Some frequency standard, whether crystal calibrator or frequency meter. All in all, you must admit, a reasonable outlay for a station that will be "in the air" for the "air". Be that as it may, our Boy is off to communicate with all and sundry, with all the enthusiasm of a beaver building a new lodge. The argument that Amateur Radio interferes with studies is old, but is as valid now as ever. And I'd wager there are many who will agree with me.

I commend to you that the situation is just the same for a proposed Novice, but the problem is aggravated at each stage. The 14-year-old has one year to: (a) build up a suitable knowledge of the theory of electronics, and to do the job properly if he is to learn about the problems of layout, tune-up, soldering correctly, winding coils, getting bits together, etc.; (b) receiver okay, we can, if lucky, get away with a 100-watt 3-band or 400-wattroom receiver; (c) can a Novice's holding be extended long enough—some modifications will be required, more time; (d) aerial, a long wire will suffice or a little better, a dipole, the question is which band, what about the happy to anchor it to—? and Dad be somewhere with it here or there? etc.

Somehow the Novice is on the air, then let's just assume he has a year (i.e. he managed to scratch together the required gear before he was 18). The boys of this age have too much energy not to be engaged in some sport at week-ends, and too much money to go to the races, to the summer, when there are no projects, no projects, no work which must be done. Unless our Novice is prepared to make a few sacrifices the regular work of the club is going to be there. I think I need continue no further along these lines. I am referring here to all proposed Novices generally. I'm not talking about the few who are pushed on by a young lad flying through school and just as good at Amateur Radio. Anyone can be a Novice, but an individual situation to suit an argument.

Other points I would like to raise are (1) How will our young operator get experience talking properly by the use of telephony if he is confined to c.w.? The ability to "talk" to the other operator is **just as important** as good c.w. Have a listen around and you'll see.

Finally, who will inspect his equipment to see that it is safe to use and not able to be "doctored" once on the air for Novice operation?

This letter has turned out much longer than I anticipated, but if we think about it, I do not think that the number of Novices we would get out of this, to become Full licensees will anywhere near justify the scheme, because even an enthusiastic ship boy needs to be fed "a little bit" a time, to maintain his enthusiasm. I have a suggestion that would work kicking around, and for those who have come thus far, here goes.

Let us base our Novice on the 14-year-old. The Novice licence be as suggested and for one year. However, instead of having a lot of Novices with their own little bits of gear, etc., I suggest all Novices become members of a Y.R.C. where they continue along as before, but with allowance to operate the Y.R.C. station on their own. Restrict them to 25 KHz. for c.w., but give them telephony practice too.

As far as the other members of Y.R.C. not Novice, the advantage of seeing some of these members actually operating the station will be the incentive they need. Many problems are eliminated—(1) Parent-child relations improved (2) Novices or their equipment are not used (3) Novices can get the station operation at most times already existing—have a roster if you must but something could be worked out; (4) P.K.G. would be much happier in the knowledge that the Novices will be all operating, cutting down on the Novice's supervision, and (5) under this method those lagging a bit could be spotted and pushed along.

[illegible]

—Peter P. Morrow, VK2BMP.

Editor "A.R.," Dear Sir,

I have found that the letter I wrote to "Amateur Radio" on 26th July has been photostatically copied and sent on to Mr. Rex Black, VK2YA, Chairman of a Novice Licensing Committee. On the 11th August I received a long three-page letter from Rex in reply to my comments. I am not retired, like Rex, and have limited time available for writing. Therefore, before I have had any intention of commencing a private correspondence series with him, and his letter is enclosed, along with my reply.

This letter refers to Rex Black's letter and others in "A.R.," so would you be good enough to return a copy of the letter from Rex Black, also?

In para. 2, Mr. Black questions my comments about countries which do not have Novice licensing and that letter from Mr. Higgins about licensing in July "A.R." where he points out that the Committee infers that "these countries do not have Novice licensing." I think we have no Novice License—unquote. This is incorrect and Mr. Black has missed the point of my letter, which was to point out that in England and New Zealand because the standard is lower than Australia (50% for the Amateur with their lower standard. Surely this is a negative attitude, for we are not in a position to have a standard as low as in WVK3 who are members of the Institute?

The latest count shows nearly 4,000 in VK2 and VK3 combined, out of a total of slightly over 6,600 for Australia; this is a good number and our object is to obtain a higher percentage of members in the VK2 and VK3 areas.

W.I.A. I have stated in my last letter, we urgently need to make the W.I.A. more attractive, such as the State Convention held at H.M.A.S. Cerberus, Crib Point on Saturday, 12th May, 1961. The W.I.A. was represented by the Vic. Div. President and his assistants, an enjoyable day was had by all. This kind of attraction can bring the members together under favourable circumstances and make the W.I.A. very attractive. The W.I.A. can have a series of pleasant gatherings, give the members something to look forward to.

Paragraph 3. We do not have a steady stream of resignations in VK3, so I have to again say, this is a negative attitude. Let us look at some fees and compare, since there is a general increase in all places:—

Combined T.V. & Radio Licence	\$26.50
Amateur Licence	\$6.00
I.R.E.E. (low grade)	\$15.00
Bowling and Tennis Club	\$20.00
W.I.A.	\$11.00

Paragraph 4. Mr. Black seems to imagine that all the new multitude of Associate members would automatically happen. We would have "Instant Associates," as soon as a Novice licensing arrangement was launched. How does the W.I.A. intend to handle this? Are all the Novice licensees going to join the W.I.A.? Perhaps his scheme could be applied instantly to get that 48% of present licensees to join the W.I.A. as FULL members.

as far as the Radio Inspectors' Department is concerned. The Committee's idea for an examining committee is an excellent idea, but what do you mean by "examinations"? You mean you can issue a Novice licence at say 50% pass, but the administration of all these extra licensees is the nuisance.

Paragraph 9 has set down a complex series of examination details in parts A and B to ensure that the Novice has to be tested in 10 subjects in 10 minutes. This in my opinion paints a beautiful picture of a Novice in his shining white armour with Morse key built in, but can anyone in this country pass this? It is very different from a regular A.O.C.P. student? Mr. Black is going to test the Novice with: "Special stress on i.v.t. and b.c.l. and very clear radiations." I have no objection to a Novice being incapable of satisfactory operating after such a test would be none other than the Novice himself. I will personally guarantee that none of his Novices will ever cause any of the above QRM. The latter part of the paragraph is a nuisance and I am sorry that you have had such a high percentage of "dropouts" at your Gosford Radio Club. Down here in backward Melbourne I found that anyone who was known will gain an A.O.C.P. no matter what his profession or work happens to be. I remember VK3TH, and I started the W.I.A. A.O.C.P. classes, on a business basis, in November 1933. George was manager, Bob Dalton was secretary, and I was the theory and regulations instructor. We conducted a maximum of 40 per class and at the end of the last year the number had come down to 25, but they were keen and we usually obtained 80% passes. Each pupil was automatically made a student member of the W.I.A. and I gave them all the magazines and the "A.R." for one year.

The members who operated on the broadcast band were given a grant of 10 guineas by the Radio Inspectors' Department, to advertise the A.O.C.P. classes and we were always fully covered for expenses. I was never charged, but I think it was about five guineas including a copy of the A.R.R.L. Handbook and "somebody's" electricity and magnetism.

I had a resident in the house take a country broadcast station appointment. The present A.O.C.P. classes are a continuation from these days, 38 years later, and still very satisfactory.

Paragraph 7. The school boy I can quote is my elder son, VK2ZPM, who did as I said. He had been a schoolmaster, but all the information I have quoted is accurate and you might do some research in the past to find out if the VK2 men were called "The Association of Radio Amateurs (N.S.W.)"—later to become the VK2 Division.

Further on your reference to how hard it is to pass the A.O.C.P.—I know from vast experience in this field that if you are keen enough you can do it—no matter how many of the all the advertisements as they pass, in Morse—and you write the formulae on cards and carry them about you when you are out at any time through your working day.

You say that you cannot recall a Gosford Club member ever having a c.w. QRC. Well, it is not the province of the A.O.C.P. holder to use any mode of communication within the regulations that he favours? You say "I had the time to do it." I think they would have gained and retained Morse skills which they certainly do not have now.

The truth is that a Novice can pass at 10 w.p.m. test and is keen to get an A.O.C.P., he can raise his speed to 10 w.p.m., it is much easier to raise speed to 10 w.p.m. than to 20 w.p.m. and many c.w. men operate at this speed. What is the point? The speed is controlled by the slowest operator of a group. I think your argument is the same as Morse skill or theory and regulations skill, the person who has just passed the A.O.C.P. and is not engaged in the business of telegraphist or electrical engineer is at a considerable disadvantage to the man in the field—until he gains some considerable amount of experience.

I did not say that school physics covers the A.O.C.P. syllabus, but can you not see that the student is prepared for the A.O.C.P. examinations in the business of telegraphist or electrical engineer and examinations are easier than to a mature person who has left school at 15 years of age and has no preparation to study the A.R.R.L. Handbook or attend the W.I.A. classes. You are splitting hairs about the syllabus.

Paragraph 8. Mr. Black says that 160 metres is not used adequately in VK2 and he proposed that Novices could use 1800 to 1850 KHz. This is the rule of the Radio Inspectors' Department. The poor misguided people have a listen on this band, to the W, KL7, etc., etc., signals coming through the air will tell you that this is the band when the DX does not come through and you could put Novices on for local practice, but

how could you police it? Or supposing the band is open, the 10 watt Novices would give up under the 150 watt stations. You have so many stations on this band that you can't sound like a "Police State". None of my friends would be interested in such regimentation of frequencies and hours of operation. Refusing to add to the restrictions imposed by the Radio Inspectors' Department, to many stations to avoid i.v.t. and b.c.l.—what a negative attitude to adopt.

Paragraph 9. It is good to hear that the Novice Committee is prepared to bring to the attention of the Institute the need for special treatment for handicapped persons. It has been my experience as a member of the Institute for 42 years that the Superintendent of the Radio Branch has not hesitated to make it possible for a handicapped person who is very keen to gain the A.O.C.P. to do so with only a few extra minutes. It is the circumstances, and not genuine cause has ever been refused.

You must realise that no set format could ever be drawn up to cover all situations. I agree the Institute should appoint a committee to do research on this subject. You suggest that: "Stepping up the W.I.A. assistance to a handicapped person would make the government authorities who are responsible for caring for these people, and the Institute, look in favour and the W.I.A. would gain allies in its efforts to retain our allocated frequencies, which would be added to the list of the various eyes of commercial interests"—unquote.

Why do you and many other members of the W.I.A. keep repeating that the Institute has about "lack of usage" and "use our bands to greater advantage"? There is too much talk and no action! If everyone who says or even thinks that the Institute are not being used, make it their business to immediately get on the air, this mythical problem would disappear! Take a commercial station, say 3.5 to 39 MHz., which most transmitters and receivers will cover, and I promise you a QSO every second minute of the day or night, on one of them.

I do not have as much time to be on the air as I would like, but my log shows 40,363 contacts since 1930. Since then I have been on air from September 1939 to December 1945 (and I hope you were not), that is an average of 44 hours a week. I am sure you can do this and I know people who make more.

Paragraph 10. Re Mr. Black's letter in "A.R." for January 1947. I am sorry that I have no reference to people not taking the trouble to submit their opinions to the Committee immediately. Didn't you know that the people who make up the Committee are not in the habit of writing back to you? You would not be able to have a reply to your letter in "A.R." by about the 5th of the month, when you can see it in the next issue.

Ron Higginbotham's long study on the subject of NO NOVICE LICENCE was printed in July "A.R."—this is reasonable in consideration of the time in favour of the Novice, but I don't know if "Umlid" points that the Committee put forward.

I take the subject of Novice licensing very seriously because of the repercussions which I know would take place and Mr. Black will only convince me about his claim of 10,401 anti-Novice, when he publishes in "A.R." ALL the correspondence that the Committee received prior to the compilation of the Novice report. You say that the Novice Committee is not interested in favour of the Novice, but I don't see of sarcasm in your statement: "Most of the anti-Novice arguments submitted were pitiful and silly and were not backed up by any logical reasoning."

I take it that Ron Higginbotham's and my letters fall into this category?

Paragraph 11. Congratulations Rex on getting an FT200 transceiver and I hope to speak with you very soon.

Paragraph 12. It is the logical thing to continue the activity of the Novice Committee and let them submit a later report because until the 1970 Federal Convention this or that publicity had been given to the subject and no discussion amongst W.I.A. members, in this State and elsewhere.

The Novice Committee produced its report on 1st April, 1971, one week before the 1971 Federal Convention, but Mr. Black's letter to "A.R." concerning the Novice Committee is not it rather obvious that there was not sufficient time to receive considered opinions in the 1971 Convention of "A.R." before the report was made up?

Mr. Higginbotham's report was published in July "A.R." and I suggest that you get the men in the Committee who were making up their report WITHOUT any real arguments from the members of the W.I.A. in other States. Paragraph 13. I am sure that you will remember now that you are retired and no longer a school master, therefore refrain from giving advice to the Novice Committee, your young Novices! You have "directed" me to send my "for and against" arguments to my

Divisional Councillor, Dr. Deane Blackman. Instead, I am sending this to the Editor "A.R."

I agree Dr. Deane Blackman, who is engaged in many other things, has no time to edit "A.R." for all the Apollo Missions, performs an excellent service and is enjoyed very much by the public.

Refusing to hear for your long letter, you went to a lot of trouble, but this subject is not one to be taken up by individuals corresponding with me. Why not discuss it on the open forum of our "A.R." magazine.

Finally, I wish to make some comments on Mr. Michael J. Owen's "Federal Comment" in June 1971 "A.R." under the heading of "Novice Members' Appeal for Report of Basic."

Item 1. In these days when matriculation is definitely a more difficult examination than it was at the beginning of its introduction, the question arises as to whether or not to obtain. Standards of examinations necessary to higher B.Sc. are much more complex than in my day. Why, for heaven's sake, talk about lowering the standard of the theory examination in order to issue a third rate A.O.C.P., called a Novice?

2. No comment.

3. If you are keen enough you can practice to 10 w.p.m. instead of 5; this is unnecessary.

4. No comment.

5. This needs to be qualified. I would be confident that the majority of one year Novices I don't believe this would be practical. It would be unacceptable to most people. I have heard of the idea of a Novice examination such and the few who go from A.O.C.P. to A.O.C.P. would have gained the A.O.C.P. if we were not blessed with the A.O.C.P.C.

6. Naturally.

7. Naturally.

8. Naturally.

9. Too restricted. How do you police it?

10. Too restricted. How do you police it?

—Ivor Morgan, VK3DH.

(Following is Mr. Rex Black's letter in reply to Mr. Ivor Morgan's first letter in Sept. "A.R." Mr. Black's letter is so well written and so clear so that readers can refer to Mr. Morgan's comments.—Editor.)

Ivor Morgan, VK3DH, Dear OM,

The Secretary-Manager of the W.I.A. has sent me a bunch of photostat copies of letters to "A.R." on the subject of Novice licensing. I must thank you, therefore, for taking sufficient interest in the idea of a Novice examination, and contributing to the debate on these interesting topics.

1. I do not think that anyone would agree with the proposition that Frank Goodman could be classed as technically backward because they do not have Novice licensing in their country. I am sure that you will be of the mind that it is easier to get an Amateur "ticket" in Britain than it is here in Australia. The examination is conducted by the G.P.O. but by the City and Guilds Institute and the exam. pass mark is only 50% compared with our 70% pass. Under such circumstances it is doubtful whether the City and Guilds Institute (also 50% pass) need Novice licensing, as they can get adequate numbers of Amateurs with long experience.

2. The matter of getting a greater percentage of VK Amateurs into the W.I.A. is—I agree—of immense importance, but I cannot see much to be gained from the idea of a Novice examination. It is a steady stream of resignations. After all, a Novice is not like a trade union which one must join and then stay in. It is a Novice and it is hard to exert pressure on Amateurs who do not see any advantage in belonging. Problem is how to convince them. I think the figure of 10,401 is a good one. I am sure that the Institute members—as you state, a "dreadful deficiency"—and I just don't know the numbers. There are economic trends and some people with families find that there are priorities in their spending. The idea of a Novice membership is a luxury that some cannot afford.

3. Ron Higginbotham quotes the fact that Associate members are not worth as much to the Institute as Full members, and that they pay lower fees. Therefore, if we get Novices, they should be Full members. The Committee has no objection to this. I am sure you can assure you, and we felt that more conservative members would resent having only equal status with the Novices. I am sure that you will find in U.S.A. the A.R.R.L. accepts Novices as Full members. Anyway, whatever recommendation we made would have found someone to criticise. I am sure that you will find that the probable wishes of the older and established members should be considered—being that the idea of Novice membership is a luxury that some cannot afford.

4. I doubt whether there is any real reason for condemning the whole idea of Novices just

least a proportion of these into professional electronic careers.

A sub-committee of the Eastern Zone of the Victorian Division of the W.I.A. wishes to encourage a class of licence to provide a step, filling the large gap between the raw beginner and the existing high standard expected of the present A.O.C.P. holder.

The "Restricted Licence" has been commonly used, but it is unfortunate in that it implies a low standard—an alternative name should be investigated, such as "Restricted Licence", the reasons for this will be clarified below.

An examination for Restricted Licence should ensure that the holder is proficient to the normal standard, but only in those fields that he will use in his Amateur activities. It is suggested that the A.O.C.P. examination paper be in two sections. The first involving perhaps one and a half hours, to include power supplies, crystal controlled c.w. transmitters, simple receivers for c.w. operation, and aerials. Restricted applicants would only attempt this first section. The normal A.O.C.P. applicant would also be required to do this section, and in addition follow on with a further section covering the more advanced technical topics until the time of two and a half hours had elapsed.

To prevent Novice sections of the bands becoming areas of low standard operation, there seems to be little merit in restricting frequencies, other than from band edge to the generally accepted frequency at which phone operation normally commences.

The question of pirate operation looms as the largest cloud on the horizon in the minds of many, wherein cancellation of a short-term licence will leave functional transmitting equipment in the hands of an unlicensed operator. However, this committee favours making Restricted Licence a continuing one. There is no justification for a time restriction. Older persons or students should not be forced into full A.O.C.P. standards at a time limit on their Restricted Licence tenure.

Restricted licensing should encourage constructive work by reason of the simplicity of equipment involved, thereby discouraging the growing and disquieting trend towards commercial packages, the internals of which the operator may have negligible understanding.

With a firm foundation of Restricted licence operation, there would be adequate incentive for most persons to proceed to A.O.C.P. standard.

—Victorian Eastern Zone, W.I.A.,
Novice Licensing Committee.

T.V. PIONEERS

Editor "A.R.," Dear Sir,

I have just heard of the death of Tom Elliott, VK4CM, and I am sad at his passing.

He was indeed a pioneer amongst Amateurs and he will be well remembered for his accomplishments.

However, over the years he has been credited with transmitting the first television images in Australia in 1935; in fact, a bronze plaque on the Observatory in Wickham Terrace, Brisbane, used to attest to this.

In view of recent publications on the subject, the Brisbane City Council, on advice from the Historical Society of Queensland, have changed the wording on the plaque from "The First Television Transmission in Australia" to "The First Television Transmission in Queensland".

This is now in accordance with the facts as there is ample evidence that the first public demonstration of television in Australia took place in Melbourne on 10th January, 1938.

At that time I was operating Amateur station 3II and was also in charge of the development of the equipment and the picture transmissions, so my efforts predate Tom's by almost six years.

My interest today is to pay tribute to a true pioneer and at the same time set the records in order.

—Gil Miles, VK2KJ.

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LIMITED LICENCES

Editor "A.R.," Dear Sir,

In the August issue of "A.R." was a reply by the Federal President of the W.I.A. to an anonymous letter concerning Limited Licences. The most noticeable thing about this reply was the rather puerile repetition of the title "Mr. Anonymous Letter Writer". If a person wishes to make a point while remaining anonymous, that is his prerogative. In fact, the desire to do so must be taken at least partly as a reflection on the organisation to which he is writing.

Having criticised the manner of Michael Owen's reply, I would like to disagree with its matter. If the Institute is so interested in Limited Licences, why does it deliberately discourage them from participating in the R.D. Contest? The rules of the Contest are such that the v.h.f. operator cannot help his State's score more than by making the five contacts needed to enter a log. In VK5, at least, considerably less stations on six metres wasted a week-end this year to score 20-odd points. I wonder how many of these will bother next year?

—Alan Jamieson, VK5ZFJ.

(The 1971 Federal Convention dealt with changing the rules of Contests and to the transfer of the Federal Contest Committee. The former referred to repeat contacts after specified periods; the latter formalised the transfer of the Federal Contest Committee from VK6 to VK4. It is reasonable to assume that future 24-hour contests will include these provisions. —Ed.)

R.D. CONTEST, 1971

Editor "A.R.," Dear Sir,

Was I wrong or was this year's Contest among the best yet as far as friendliness is concerned?

One always meets old friends in the R.D. Contest, to my mind the best Contest I have experienced as an Amateur, both of one's own State and further afield, and I was not disappointed this year.

Brisbane and further north areas operators were not very happy about 30 metre band conditions as the band was virtually not usable because of QRN. Several storms were over S.E. Queensland soon after the Contest started and I quit with lightning around the antennas.

I did not hear any 10 metre signals from my QTH, but logs will tell the story on this band.

On 15 metres, VK9 was going great guns with southern States that I could not hear late Sunday morning.

Should we nominate a calling time for the 10 metre band? Say, late Sunday morning.

To those who entered to win, or themselves or their State, I wish you good luck and good scoring. To those who came on to help make it a good Contest, thanks a lot, your efforts are appreciated. Let your Federal Councillor, or me, have suggestions for making this Contest better.

I hope to hear you next Remembrance Day Contest and spare a thought for those who are not with us.

—Peter Brown, VK4PJ,
Federal Contest Manager.

OBITUARY

W. ("SKIPPER") SCHOFIELD, VK6WS

In Perth on 4th August, 1971, William ("Skipper") Schofield, VK6WS, aged 96 years, a very old timer, passed away.

His interest in radio commenced in 1925 when he purchased the then newly released Cosor kit-set broadcast receiver, and successfully completed its construction. He later joined the W.I.A. as a student member, attended the A.O.C.P. classes, and then in his sixties, secured his Amateur licence with the call sign VK6WS. He participated in the administration of the W.I.A. Division for a number of years, and was also a leading light in the Subaco Radio Society, later the Radio Society of W.A.

Although blind for the latter years of his life, he remained an active operator with the assistance of understanding operators who maintained his equipment in safe and operational order, until two years ago, when infirmity prevented further activity.

He was also a prominent yachtman and a member of Royal Freshwater Yacht Club, hence the affectionate sobriquet "Skipper". Many W.I.A. members have happy memories of week-end excursions on his ocean-going cruiser.

To his relatives, the members of the W.A. Division extend their sympathy.

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NEW CALL SIGNS

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VK1VB—V. F. Burman, 140 Badimara St., Warrnambool, 3211.
VK1ZAF—A. F. Blight, 1 Praed Pl., Garra, 3005.
VK2ATX—N. G. McAlpin, 156 Hull Rd., West Footscray, Hants, 2120.
VK2BSZ—T. E. K. Southwick, 35 Duntroon St., Hursthouse Park, 2193.
VK2ZDR—C. C. Dunlop, 8 Chambers St., East Maitland, 2323.
VK2ZGT—R. C. McGregor, 44 Koola Ave., Killara, 2011.
VK2ZJ—C. C. Young, 18 Vernon St., Hunters Hill, 2110.
VK2ZM—M. K. Morris, 69 Rous St., East Maitland, 2323.
VK2ZOV—T. J. M. Young, 5 Grant St., Tamworth, 2340.
VK2ZQW—T. D. M. Badcock, 17 Helen St., Cardiff South, 2285.
VK2ZWG—G. J. West, 17 Huntleys Point Rd., Huntleys Point, 2111.
VK2ZYP—T. G. R. Beech, 146 Harrow Rd., Auburn, 2144.
VK3CC—R. S. Pearce, 115 Plenty Rd., Bundora, 3083.
VK3CQZ—J. G. Colley, Station 28 Charles St., Traralgon; Postal: P.O. Box 115, Traralgon, 3644.
VK3W1R1—Wireless Institute of Australia, Victorian Division, Station: 140 Neil St., Carlton; Postal: 478 Victoria Pde., East Melbourne, 3002.
VK3AAV—C. J. Dodd, 8/18-20 St. George's Rd., Armadale, 3143.
VK3BDP—C. G. Dunn, 3 Allfrey St., East Brighton, 3187.
VK3YF—M. D. Daly, 9/105 Willesden Rd., Oakleigh, 3166.
VK3YGP—T. A. Pearson, "Jubilee Cottage," Main Rd., Campbell's Creek, 3651.
VK3ZJ—C. C. Vayne, 1299 Heathcote Rd., Noble Park, 3174.
VK4JD—J. M. Donnell, 33 Alice St., Atherton, 4083.
VK4QS—R. Sayers, 6 Robinson St., Belgian Gardens, Townsville, 4810.
VK4RC—Redcliffe Radio Club, 124 Savannah St., Redcliffe, 4020.
VK4UJ—A. H. Burton, 11 Rocks Rd., Oxley, 4075.
VK4W1R2—Wireless Institute of Australia (Queensland Division), Station: Mt. Mowballan; Postal: Box 638, G.P.O., Brisbane, 4001.
VK4W1R2—Wireless Institute of Australia (Queensland Division), Station: 31 Haig St., Pinelake, Townsville, 4810; Postal: Box 638, G.P.O., Brisbane, 4001.
VK4ZBL—A. H. Blake, 15 Kilsby St., The Gap, 4001.
VK4ZCC—C. Gladstone, 51 Wambool St., Bulimba, 4171.
VK4ZPJ—P. J. Evans, 118 Alura St., Ekinb, 4121.
VK5LW—G. E. Thomas, 115A Angus Rd., Westlawn Park, 5041.
VK5QJ—W. Wolcott, 27 North St., Collinswood, 5081.
VK5ZAM—A. J. McKenzie, 319 Esplanade, Henley Beach, 5022.
VK5AC—A. Ferguson, Station: Cr. Kilaney and Moynon Sts., Kalgoorlie; Postal: P.O. Box 880, Kalgoorlie, 5430.
VK6SK—E. Pledger, C/o T.V. Station, Koolan Island, 6733.
VK6ZE—F. W. Bird, Flat 5, "Kailany," 5 Welshpool Rd., Bentley, 6102.
VK6ZKG—K. H. Gates, Station: O.T.C. Tracking Station, Carnarvon, 6701; Postal: P.O. Box 348, Carnarvon, 6781.
VK7RD—G. Reid, 20 Elboden St., South Hobart, 7000.
VK7ZNR—N. M. Richardson, 69 George Town St., Launceston, 7250.
VK8VJ—C. M. Smith, 3300 Byrne Circuit, Moll, Darwin, 5794.
VK9HL—R. R. Hooper, P.O. Box 251, Lae, T.P.N.G.

ALTERATIONS

VK2WC—W. M. Cavanagh, 3 Hastings St., Wauchope, 2400.
VK3BV—H. Fitzpatrick, 4 McIntyre St., Hamilton, 3200.
VK3FO—T. C. R. K. Gibson, Spring St., Maitland, 3063.
VK3H—F. A. J. Forse, 8 Merrick Cres., Glen Waverley, 3150.
VK3JL—T. T. Bell, Flat 8, Debonny Crt., Lower Plenty, 3093.
VK3KL—M. L. Brane, 43/6 Williams Rd., Windsor, 3181.
VK3SZ—S. I. Zeunert, Lot 274, Swift Dr., Glen Waverley, 3150.
VK3XU—J. R. Oxley (Rev.), 68 Suffolk Rd., Surrey Hills, 3127.

VK3AHT—R. Morton (Dr.), 132 Hearn St., Colac, 3250.
VK3AJH—J. R. Handley, 35 Bulla Rd., North Essendon, 3041.
VK3AJO—J. R. O'Halloran, 67 Macedon St., Sunbury, 3429.
VK3AS—D. J. Slade (Capt.), Lot 80, Michelle Ave., Watsena North, 3087.
VK3AKQ—K. J. Ebbgen, 18/77 Alma Rd., St. Kilda, 3182.
VK3ASO—Midlands Experimental Radio Club, Station: Flora Hill, Bendigo; Postal: Bendigo Institute of Technology, McCrae St., Bendigo, 3550.
VK3AZM—D. L. Godfrey, 122 Nelson Pl., Williamstown, 3016.
VK3BBE—E. P. Blake, 80 Moga Ave., East Keilor, 3042.
VK3YAP—R. E. Proudlock, 26 Stuart St., Armadale, 3143.
VK3YBA—M. Skop, 12/68 Alma Rd., East St. Kilda, 3182.
VK3ZDQ—B. J. Treloar, 4 Ash Crt., Mulgrave, 3170.
VK3ZGT—L. N. Tate, 6 Bindi St., Warrnambool, 3280.
VK3ZHA—E. P. Blake, 10 Sheffield St., South Caulfield, 3162.
VK3ZKL—A. Slamin, 72 Carronvale Rd., Mooroolbath, 3128.
VK3ZVK—N. Hull, 4/44 Glenferrie Rd., Mooroolbath, 3128.
VK4CH—W. J. Jackson, 12 Colleen St., Lawnton, 4501.
VK4HY—H. H. Varnes, 13 Empress St., Too-womba, 4350.
VK4ZAA—A. A. Millard, 15 Murray St., Red Hill, 4659.
VK4ZDM—D. W. McGrath, 4 Stanton Tee., Glenview, 4510.
VK4ZHE—J. W. Heares, 1/30 Russell St., Townsville, 4810.
VK4ZKT—K. H. Tietze, 1420 Gynple Rd., Aspley, 4054.
VK5AL—K. S. Harris, 26 Officer Ave., Bellevue Heights, 5052.
VK5FO—B. A. Falk, Bradbury Rd., Myleor, 5133.
VK5OT—T. M. D. Sobels, 86 Valiant Rd., Holden Hill, 5088.
VK5PC—D. A. Greig, 3/89 McDonnell Ave., West Hindmarsh, 5007.
VK5ZRU—W. G. Scott, P.O. Box 455, Loxton, 5233.
VK6DE—A. W. A. Storm, 123 Hastings St., Scarborough, 6019.
VK6JL—J. L. Lewis, C/o Government School, Yuna, 6532.
VK6TR—T. W. Reed, 26 Roche Rd., Sorrento, 6020.

CANCELLATIONS

VK2ZE—T. J. L. Jones. Transferred to S.A.
VK2ZET—S. R. Gregory. Transferred to Vic.
VK3ZMV—M. H. Adams. Not renewed.
VK3ZOE—L. N. Smith. Transferred to Tas.
VK3ZSZ—T. E. K. Southwick. Now VK2BSZ/T.
VK3BP—D. J. Terrill. Transferred to N.S.W.
VK3EB—J. E. Falkner. Not renewed.
VK3JY—J. Medlicott. Not renewed.
VK3XT—G. F. Millard. Not renewed.
VK3YB—H. McLaughlin. Not renewed.
VK3YHC—H. N. Charles. Not renewed.
VK3YIB—A. I. Berry. Not renewed.
VK3YQA—R. W. Ames. Not renewed.
VK3YQL—W. Woolf. Not renewed.
VK3YQZ—J. G. Colley. Not renewed.
VK3ZSB—T. S. B. Roberts. Not renewed.
VK3ZSX—D. J. Grant. Not renewed.
VK3ZUT—A. U. Magnus. Not renewed.
VK3ZUT—R. D. Turner. Not renewed.
VK3ZV—R. H. Adams. Not renewed.
VK3ZTC—A. N. Richardson. Now VK1ZNR.
VK3ZTZ—D. M. Clancy. Transferred to N.G.
VK4U—D. M. Weit. Deceased.
VK4VP—P. E. Barker. Not renewed.
VK4VV—Wireless Institute of Australia (Qld. Div.). Now VK4W1/R1.
VK4ZBE—R. Sayers. Now VK4QS.
VK5RV—P. J. Lyaght. Not renewed.
VK5UB—E. Garner. Not renewed.
VK5ZBK—E. J. Kenny. Not renewed.
VK5ZDQ—E. J. Kenny. Not renewed.
VK5ZEM—I. C. F. Modestich. Not renewed.
VK5ZPI—G. E. Thomas. Now VK5LW.
VK5ZRM—R. W. McCarran. Not renewed.
VK6DY—F. H. Smith. Left country.
VK6JV—J. Vogel. Transferred to T.P.N.G.
VK6ZAU—W. R. Cooper. Transferred to Fil.
VK6ZJH—T. L. Harrison. Now VK6WAT.
VK6ZV—N. M. Nisbet. Not renewed.
VK7MB—A. C. McBurnie. Not renewed.
VK7PT—W. F. Pirih. Not renewed.
VK7ZDQ—E. J. Kenny. Not renewed.
VK7ZOR—G. Reid. Now VK7RD.
VK8ZNR—W. H. B. Jones. Transferred to W.A.
VK8BT—R. D. Trickett. Not renewed.
VK8CQ—R. H. Mould. Not renewed.
VK8LB—J. B. Leibgold. Not renewed.

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W.A.: Associated Electronic Services Pty. Ltd., Morley, Phone 73-3858.
N.T.: Combined Electronics Pty. Ltd., Darwin, Phone 6681.

Sub-Editor: ERIC JAMIESON, VK5LP
 Forrester, South Australia, 5233.
 Closing date for copy 30th of month.
 All Times in E.S.T.

AMATEUR BAND BASES

- VK2 33.54 VK0PH, Casey.
- VK2 33.52 VK0TM, Blairgowrie Island.
- VK3 144.70 VK3VE, Vermont.
- VK4 144.290 100W, west of Brisbane.
- VK5 144.70 VK3VF, Mt. Lofry.
- VK6 32.06 VK0VF, Bickley, Perth.
- 52.90 VK0TS, Carnarvon.
- 144.50 VK0VE, Mt. Barker (Albany).
- 145.00 VK0VF, Bickley.
- VK1 144.90 VK0TV, Devonport.
- VK9 144.60 VK0KI, Christmas Island.
- ZL1 145.00 ZL1VHF, Auckland.
- ZL2 145.20 ZL1VHF, Wellington.
- ZL3 145.20 ZL1VHF, Christchurch.
- JA 91.95 JA1JG, Japan.
- W 50.01 WB6KAP, U.S.A.
- HL 50.100 HL3WA, South Korea.
- ZK 50.100 ZK1AA, Cook Island.
- KH6 50.015 KH6EGU, Hawaii.
- 50.105 KH6ERU, Hawaii.

There are no changes to the beacon list this month. It is noted with interest that a beacon service is operating in Darwin, and that one has been licensed for operation in Townsville using the call sign VK4W1/2, probably operating on 2.3 MHz. This is a very unusual service, say the least, but I guess there are valid reasons for its use. However, don't make the mistake of thinking it will be operating portable from VK21 (Marine) repeaters, should be (J2-E). Leigh VK6WA mentions that two solid state beacons to run 50 watts are being constructed by VK6 to replace the present one. It is proposed to locate them about 200 feet up the bank of TVW7, and will be about 1,000 feet a.s.l. with a good path east and west. The present 2 mxc beam is being replaced by a running satisfactorily, but the 2 mxc beam is only giving a low power output at present.

Bob VK3AOT sends along his usual notes and the following are extracts from them: "By the time these notes are read, Ken Moore of VK3, who have taken up residence in Albany, W.A., as an engineer with the P.M.G. Dept. has indicated he will be very anxious to work into the Eastern States on 144 MHz, and very willing to try to do the same on 432 MHz. He would like to take a 100W beam and set up his station, so he may not be able to make it in time for the coming DX season, but could be someone to keep an eye on the following year. This makes good news for all of us, as it is quite obvious the path is open on 144 MHz, from west to east much more often than previously imagined, so with some help and a bit of business at the western end, there will be plenty of takers the other way.

"The Remembrance Day Contest was well supported by the h.f. stations in VK3. Bob himself scored 122 points, and we said there were quite a few with scores around 50 to 60 points. About 12 or so stations really tried this year.

"On the subject of Contests, a computer programming is being undertaken in Melbourne to establish a table of scores for the following: compiling the scores for the Ross Hull V.H.F. Contest. This will be produced on the familiar square table format, and currently covering 48 Australian towers and later expanded to 55 towns. This should help entrants to more readily ascertain the distances between many of the stations, and later on, when a table of advance copy is to be sent to VK5LP and it is hoped to publish same in 'Amateur Radio' for all to use.

"John VK4ZJB is now running the legal limit on s.b. on 144 MHz. from his home in Brisbane and will be looking for contacts to the south into VK2, 3 and 5 at least this coming DX season. This is a most interesting situation, very much of recent years due to lack of suitably equipped stations in VK4, but John has now been Sunday, 4th and 5th Dec. at 50, 52, 144, 432 and 1296 MHz, plus h.f. for liaison purposes. This week-end is the date of the annual VK5 V.H.F. Field Day, and also

coincides with a VK3 V.H.F. Field Day." Thank you Bob for your helpful information once again.

The second issue of "The Victorian V.H.F.er" has come to hand and is another excellent coverage of VK3 activities. Geoff VK3AMK, a very active v.h.f. operator, has a lengthy letter included covering his thoughts on the band planning ideas for 144 MHz. His table of band division is interesting enough to bear repetition here, and is as follows:

- 144.000 to 144.025—CW and PSK; for EME and S.
- 144.025 to 144.100—CW; for CW only.
- 144.100 to 144.500—AM and SSB; exclusive voice allocation.
- 144.500 to 144.600—CW, AM, SSB, NBFM, MCW, PSK; general operation.
- 144.600 to 144.625—CW and PSK; for beacons.
- 144.625 to 144.650—CW, AM, SSB, NBFM, MCW, PSK; general operation.
- 144.650 to 144.680—FM; simplex and repeaters.
- 144.680 to 144.700—FM; permitted mode: general operation, satellite, experimental, etc.

Geoff makes the following points amongst others: "It must be noted that the existing parts of the first 500 KHz. or so on a zone of DX/city basis is really no longer valid. This may have had considerable merit in the days of almost exclusively crystal controlled stations. However, with the ever increasing use of v.f.o. and/or transceive operation, most stations if not all, certainly in the future, will operate on the frequency of the station they are working. This is much preferable to the present frequency idea as weak stations are definitely more readily heard on the frequency of the station they are calling, rather than being a faint signal perhaps anywhere within 1 MHz or so. Collapsing on the stations' transmitting frequencies also solves the problem of the weak DX being QRM'd by other stations who are unaware of the presence of a weak DX on or near their operating frequency.

- 1. A clear 25 KHz. for EME and Meteor Scatter only.
- 2. 75 KHz. for CW only. (This would be very useful for meteor scatter tied up the loose end.)
- 3. 400 KHz. for AM and SSB only. (Free of NBFM and some of the not so narrow band FM.)
- 4. 144 KHz. for general operation on frequency.
- 5. 100 KHz. for beacons exclusively.

The full text of Geoff's letter may be read in the December issue of "The V.H.F. Digest". It is sufficient lead in to set you thinking on the matter.

From Brian VK5CA some very brief word of interest in a contact recently on h.f. with JA1RNJ to the effect that he has been heard in Japan with much greater regularity on 52 MHz. than we seem to be giving credit, and suggests that the beams pointing north may bring fruitful results. The next move is yours!

SCATTER SIGNALS

Quite a lot of interest has been centred on meteor scatter signals of recent times and the excellent article by Wally VK5ZWW in "Amateur Radio" under the heading "DX by DX" has with the result more may try this form of operation in the future. However, there is another form of scatter signals which may interest those who are not familiar with the following article will help to fill you in on the requirements. It comes from the V.H.F. News "Breakdown" of the N.Z.A.R.T., issue July 1971:

"During the postwar period high power transmitting tubes and better receivers gave vastly improved reception of scatter communications. This has led to a great deal of interest in providing reliable transmissions over long distances. An early experiment by the Collins Company showed that satisfactory signals were possible on 50 MHz. at distances up to 700 miles. Similar signals were also present at 100 MHz. The power used was higher than Amateur stations are permitted to use. At present day receivers could make up the difference. These postwar experiments have led to the development of scatter communications.

"In this mode weak signals are present over long paths to give reliable communication independent of atmospheric and seasonal variations. The equipment required is the best possible, and suggests the largest antenna and the highest permitted power.

"Depending on the frequency, there are two modes of scatter. On the low bands (less than 100 MHz) the signal is reflected by the E layer, the 60-mile height and extends down to 40 miles. The slight reflections produced in this layer is sufficient to give a signal at a distance of 500 to 2,000 miles. Because of the weak signals at the receiving end, various methods have been used to improve the links.

These include low noise front ends to the receiver, high stability transmitters and receivers, dual diversity reception including both frequency and phase diversity.

"The scattering area is a variable parameter, this means that multipath reflections will occur and fading will result. All types of fading will be experienced. There will be short time and long term effects on the signal varying from 10 c.p.s. to several hours. Some distortion of frequency will also be experienced. One paradox is that a large antenna shows a lower minimum signal than a smaller one, the maximum is higher however. The maximum signal is determined by a given scattering volume could be attenuated by a highly directive antenna if this was not counterbalanced by a compensating increase in antenna with a broad pattern. With correct interception the signal is higher.

"In the case of tropospheric scatter in the u.h.f. region a similar situation exists. The scattering is occurring at a higher level and this gives a much shorter range. The maximum being between 100 and 500 miles in this case.

"All this appears to put the mode beyond Amateur stations, but it should be noted that we have and this is the non-essential nature of our communication. This means that high reliability and 100% communication are not essential. The use of this mode does make possible providing one is prepared to lose some of the messages. Using statistical analysis it is possible to estimate the possibilities. It can be shown that it is almost impossible to receive all of the signal. Likewise it is almost impossible to miss the signal. This is particularly encouraging. By finding the average signal and comparing a fade with it the following will be observed, that the signal will be above the average while the shallowest fades occupy the most time. To a large extent the signal can be made to appear to be continuous. The use of the Amateur purposes FSK CW SSB should be satisfactory. Coding of signal reports as in moon bounce may be advisable.

"By using the graphs in Orr and Johnson as a guide, it can be said that a station with a receiver with a 3 KHz. bandwidth and a 3 dB. noise figure will give a range of 200 miles with a 5 element yagi at each end. When the signal is in the 20 dB. range the distance increases to 350 miles and another 100 miles can be obtained if you have the de luxe model with several antennas.

"By applying kilowatt to the feedline one can expect about 50 miles increase. This totals 500 miles. To get a further 500 miles only requires 15 dB. more signal at either the receiving or transmitting end. It is therefore to be thus deduced that a fully operational moon bounce station should be able to bridge the gap."

So there you are. The possibilities do exist. However, I would imagine one of the difficulties in a city area would be the rather high existing noise level, but then again, M5 contacts have been made with prevailing noise levels. For those of you looking for something fresh to do, why not set a partner in another State and get moving!

COMING EVENTS

In an effort to keep the nation informed on forthcoming v.h.f. activity there seems to be a need for a calendar of events. The v.h.f. bands cannot be included in the events Calendar printed elsewhere in this issue. Informed by the N.Z.A.R.T. of the existence of a national character, covering such items as V.H.F. Field Days, Contests and any special concentrated efforts by a person or group with a view to promoting activity over the next few months. The following are the various V.H.F. Groups and kindred organisations are invited to send to the Editor of this magazine a brief outline of what the event involves. The first listing may show a little detail, subsequently the events will be listed in brief, what it is and where it is being conducted.

Information for inclusion in the general notice must be in my hands by the 30th of the month. Please note that copy for the January issue must be available by 25th November, five days earlier than the other months.

A reminder to those who have qualified for the Cook Bi-Centenary Award that your applications must be in the hands of the Awards Committee by 31st Dec. 1971. Please note the minute rush what about getting the job done now before the DX starts coming through!

That's all for this month. I leave you with this thought: "The greatest happiness of life is the conviction that we are the love for ourselves, or rather loved in the spite of ourselves." 73, Eric VK5LP, The Voice in the Hills.



By H. F. EVERTICK

C/o. P.O. Box 36, East Melbourne, Vic., 3002
(Times are in G.M.T.)

The response to appeals for help in compiling this column are coming in well from old friends. More is needed though, please. Every effort is being made to make this column current and useful. If a rare DX-pedition comes up after this article is written but before it is read the only piece of useful information may be the QSL address.

ITALIAN PREFIXES

The A.R.I. advises that the prefixes now in use correspond approximately to the regions and are—

- IP1—Piemonte, Liguria, Valle d'Aosta.
- IZ—Lombardy.
- IZ—Veneto, Trentino, Alto Adige, Friuli—Venezia Giulia.
- IZ—Emilia.
- IZ—Toscana.
- IZ—Marche, Abruzzo.
- IZ—Puglia, Basilicata.
- IZ—Campania, Calabria, Molise.
- IZ—Sicily.
- IZ—Lazio, Umbria.
- IZ—Sardinia.
- IZ—Tuscan Isles (Elba, etc.).
- IZ—Pontian Isles (Ponza, etc.).
- IZ—Naples Isles (Capri, etc.).
- IZ—Eolie Isles (Panicoli, etc.).
- IZ—Ustica Isles.
- IZ—Egadi Isles (Favignana, etc.).
- IZ—Pelagic Isles (Lampedusa, etc.).
- IZ—Pantelleria.
- IZ—Trentini group.
- IM0—Small Sardinian Isles.

However, existing licensees can retain their IT (or IS) calls.

Venezuela.—4M4 prefixes to mark 150th independence to 3/12/71.

Rarer Calls (mainly s.b. 14 MHz.). VK-3AXQ finally worked Jim ZMTAG after seven

months of dog-piles and in his lists included VKOTM (on Macquarie till Nov.), 9HIBG, a couple of 3VAs and 5X5NA. VK3FZ worked Gaa. Is. VSMPT and will have been looking out for 4J0BJ and 4J0DI DX-pedition on s.b. to Sakhalin Is. by UW3BJ on c.w. JIADIC on Bouin Is. VK4XK mentions that ZL3PO/C will be on Chatham Is. until next Feb. working c.w. and s.b. most bands, that the 7 and 3.5 MHz. bands held his interest for long periods and a few of his more exotic ones (mainly on c.w.) included ZK2AF (Niue Is., South Pacific), 9G1FF, 9POTG, HDMFF. Murray also comments that Commonwealth Relief Coupons may go out of fashion with the increased postal charges this month. Most of these operators also worked some of the stations in the QSL list. George Cruickshank, VR4CG, on the Solomons (VK-2BGC at VR4CG), is looking for contacts on 14159 KHz. most evenings.

160 METRES

Ralph WIHGT will be on 1802 KHz. plus or minus 40 minutes of G.M.T. sunrise times stated on Oct. 10, 1051; Oct. 17, 1059; Oct. 24, 1108; Oct. 31, 1116; Nov. 7, 1125; Nov. 14, 1133 (VK-2BMS).

QSL INFORMATION

(Courtesy of VKs 3AXQ, 3JF, 2AXK, 4KX and 3JAMP.)

FOCH/PC—HB9TL
HBOXD—ON4QV
JYI—WASHUP
PUBDX—KINPV
UMFZF—WAEFL
VPMZF—VJGCO
VPVAG—VJGOMT
VQSDK—VJGAKV
F8KAA—Box 28, Noumea.
KX6DG—Box 997, A.P.O., San Francisco, 96555, Calif.
ODSET—Box 4484, Beirut.
T2AS—Box 1814, San Jose.
JYVXC—Montmartre, Port Vila.
SWIAK—Box 721, Apia.
5X5NF (Darlene)—VJGAKV.

QSL managers normally QSL via the Bureau although some will QSL direct against a self addressed envelope and IRCs enclosed.

DX-peditions. WTUXP/KM6 from Midway Is. from about 21st to 24th Oct. and again 1st and 2nd Nov. From 25th Oct. to 1st Nov. Kure Is. will be activated (but there will be some phone

patch traffic). Operators are WTUXP/KH6HGM, KH6GMP and KH6HGP. Modes will be c.w. 14005, 21005 and s.b. all bands. QSL to KH6HGM with s.b. and usual IRCs, no cards via bureau (courtesy KHEZF).

Other: Roy Johnson, VK2ND, has QSYed for six months to Lue where he hopes to get on as VK9PD. QSL via VK3 Bureau (courtesy Eric L30042).

VKZL Contest results as printed on page 15 of June "A.R." amend JAZ1Y to read JAZ1YJ and add JAZ1XJ with a score of 900 points. (VKZDK)

Awards. Balearic Islands (EA6 Radio Club, Box 34, Palma, Mallorca). 10 EA6 contacts on two bands on c.w. or on major bands c.w. or phone. QSL cards contacts after 1/1/69, certified list and 10 I.R.C.s (free to blind and paralysed ops.).

25 Award. 2-way c.w. or phone, any band from 1/1/33 with 21 JAF prefix stations, list with QSL cards and 10 I.R.C.s to N.J.D.X.C. Award Manager, Box 70, G.P.O., Sendai, Miyagi, Japan.

Venezuela Radio Club announces a diploma for five QSOs with 4M4 calls, any band and mode, logs to V.R.C., Box 510, Valencia, with 8 I.R.C.s (or U.S.\$1) before 31/1/72.

Most grateful thanks to those who have assisted with information. Are there any volunteers to take over this column?

— * * * —

COOK BI-CENTENARY AWARD

The following additional stations have qualified for the Award:

Cert.	Call	Cert.	Call	Cert.	Call
1381	AX6AX	1386	YAIHD	1399	JA1RU
1382	3B8BL	1387	WAEZB	1391	AX2ZB
1383	AXRZB	1388	GMGPF	1392	CHAA
1384	GT1K1	1389	PA6KA	1393	AX3CV
1385	PZ1AC			1394	AX5CY

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. Position in the list is determined by the first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total D.X.C.C. credits given, including deleted countries. Where totals are the same, listings will be alphabetical by call sign.

Credits for new members and those whose totals have been amended are also shown.

PHONE					
VK5MS	319/343	VK2APK	285/285		
VK6RU	316/342	VK4FJ	285/307		
VK3AHO	310/328	VK4TY	284/288		
VK4KS	307/323	VK4KQ	283/283		
VK6MK	303/324	VK2AAK	274/279		
VK5AB	296/314	VK3ZE	271/274		

New Members:			
Cert. No.	Call	Total	
119	VK5ZB	106/107	
120	VK4QA	101/101	
121	CH1A	113/113	

Amendments:			
VK4DO	236/248	VK3TG	105/189
VK3AMK	235/235	VK3JM	143/143
VK4RF	216/216		

C.W.			
VK3QL	303/326	VK3NC	273/300
VK3AHQ	300/315	VK3ARX	271/280
VK4FJ	289/313	VK3XD	270/287
VK3YL	286/303	VK6RU	265/289
VK2APK	284/292	VK4TY	259/272
VK3AGH	282/296	VK3TL	255/280

New Member:			
Cert. No.	Call	Total	
88	VK3LV	101/101	
Amendments:			
VK4DO	199/210	VK4RF	192/202

OPEN			
VK6RU	317/343	VK6MK	303/324
VK4SD	315/330	VK2APK	302/314
VK3AGH	314/334	VK3ED	301/325
VK2VN	309/328	VK3ARX	300/309
VK4KS	308/327	VK4UC	298/298
VK4TY	306/321	VK4FJ	297/323

New Member:			
Cert. No.	Call	Total	
136	VK5FY	109/112	
Amendments:			
VK4DO	251/269	VK3LV	106/106

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DIVISIONAL NOTES

NEW SOUTH WALES

In order to assist the sub-editor, T. Mills, VK2ZTM, and facilitate the preparation and submission of news to "A.R." for the VK2 column, Council has requested Mike Farrell, VK2ZTM, to undertake the preparation and compilation of news. Mike requests members who would be interested in sitting on this committee, and especially those with a DX type of interest to contact him by either writing to the Institute or phoning him on 357-9323 during business hours.

Special General Meeting.—The Special General Meeting called for Friday, 27th August, was not held because of short notice given and was deferred until the September meeting night. The subject was reduced fees for student and pensioners.

Members.—Notices were included in the recent Divisional Bulletin advising individual members of this fact. All members remaining unaffiliated at 31st August were removed from membership. The present subscription rates are: \$10 for Full members and \$9.50 for Associate members.

Key Section.—Rules for the Brass Founders or Key Section, as it is presently officially known, are expected to be promulgated shortly. Until then, all members who wish to be taken to get things under way. Members of the N.S.W. Co-ordinating Committee are Bill Lewis VK2YJ, Kevin Collins VK2XNY and Mike Farrell VK2ZNA.

Progress at VK3WL.—Progress on the re-equipping of VK3WL is proceeding slowly. It is hoped to have h.f. signals before long. The limiting factor in the work is lack of helpers. Members wishing to make contact any member of Council or the Dural Committee.

Inwards QSL Cards.—Among many items discussed at a recent meeting of Divisional Council was the accumulation of QSL cards in the Inwards Bureau. Many thousands of cards have accumulated and members and non-members who have shown no interest in collecting them. It was decided that all cards will be despatched in order to clear the Bureau and subsequently received for non-members and for members who do not collect cards will be returned to sender.

Y.R.S. Broadcasts.—A news bulletin is transmitted monthly at 1500 E.S.T. on selected Saturdays following the 1st of October, 27th and 11th Dec. The frequency is approx. 7050 KHz. a.m. from VK2AWI.

Jamboree of the Air.—Any person able to assist the Scout Group to aid the Scout Jamboree of the Air to be held in October should register with the Administrative Secretary, 1906 B.R. We will pass on your name to a nearby group.

Call Back Frequency.—As members will recall during the last Federal Convention, 7050 KHz. was set aside as a calling frequency. With this in mind, it has been decided by Council that it would be advantageous to move our call back frequency from 7050 KHz. When these notes were prepared no decision had been reached as to the exact frequency that should be used, but members may have ideas of their own on this subject and we would very much like to hear comments on this during morning broadcast writing to Council. When making a decision on this, we must bear in mind that the following frequencies are used by other Divisional clubs: 7050 KHz. (VK2ZTM), 7115, 7125, 7135 KHz. (VK2AXJ, Comm. Officer).

VK3 Club Net.—It is intended to introduce a "Club Net" to members of the club who can get together and exchange information and ideas amongst themselves. When these notes were prepared, no policy had been formed as to frequency, time, etc., but we will be making a Sunday morning broadcasts.

Hunter Branch.—The 1971 Westlake Radio Club Day was held on 12nd Aug. at Terahill, attracted over 170 members and visitors. The 1971 Trevor Harris Memorial Prize was awarded to the winner of the contest, which was held on the second Monday of each month, and it is hoped that attendances will improve. The fox hunt which is on 35.82 MHz. is a perpetual trophy which was donated by Basil VK2AW. The August meeting was well attended and we saw the latest in Vack equipment, the VK2ZSK and associated accessories. This display was well received. (VK2FE, Pub. Officer.)

Maitland Radio Club.—At the August meeting persons present witnessed a demonstration of the club's new slide projector equipment. The projector is a motor driven unit of the correct focal length to produce a picture the size of the motion picture screen already in the room. The club has a projector made by the club towards the installation of visual aid training equipment. The first class benefit from this visual aid training will be the benefit of the visual aid training to the new A.O.C.P. class which commenced on 24th Sept. This class will prepare advanced members of the club for the February A.O.C.P. examination. Also interested persons wishing to gain further information about the club may do so by writing to the Secretary at P.O. Box 54, Mount Maitland, 2323, or phone Maitland 33-7296. (VK2BLW, Pres.)

VICTORIA

40 Metre Tx for VK3WL.—Arrangements have been made to improve VK3WL's coverage on 40 metres by installing a higher power transmitter and a new antenna.

A.O.C.P. Classes.—Saturday classes in both the theory and the Morse are being arranged. A scale of fees favouring Institute members has been set. A special low rate has been introduced for Licensed licensee members who undertake the Morse class.

Divisional Notes.—Items which could be used in these notes should be forwarded to P.O. Box 36, East Melbourne, 3002, by 25th of the month. Please mark all items "Divisional Notes." (VK3AUL)

QUEENSLAND

Redcliffe Radio Club, VK4RC.—The club exhibited and demonstrated Amateur Radio activities at the Redcliffe Show on July 15-17 with 40 on FT-240 and 40 on Swan 350 with one antenna. A GSKW multiband tri-dipole. Next year it is hoped to improve on this and also go on v.h.f. Numerous interference problems were experienced and had to be overcome. We made 149 contacts with a total of 16 countries, gained five new members and created quite a bit of interest in the club. The club was unable to come, but maybe next year we may rig up our own v.l. gear. (Anyone with a good camera and a good lens. The club has now just over 50 members, varying in age from 12 to 61 years and including some family teams. One particular team, consisting of dad, two sons and one daughter, travel each Monday night 20 miles to attend the Elementary Y.R.S. classes. (John VK4QA)

SOUTH AUSTRALIA

The month of August saw the major contest. The Vack intrastate contest has now proved to be a popular and active activity on all bands. The results should be known by the time of issue of these notes. The R.D. Contest this year showed the further away stations with the very few a.m. stations finding contacts very difficult to find. Operating standard was very good in general with only a few inferior signals. Vox operation enabled quite a few stations to make over 500 contacts, a feat impossible not so many years ago.

The August S.A. Division meeting was a display of members' equipment, which attracted a wide range of home constructed equipment of all standards. The display was well received by Graham VK5ZOF for his Amateur Television equipment. This complex solid state project included two cameras, video processed with waveform monitor, and converter which operated continuously throughout the meeting on the commercial monitor, and a display. A very well constructed mobile a.s.b. transceiver from Les VK5NJ received an honourable mention. It was a mobile unit to be exhibited were a s.b. tx from Ern VK5EN, a six metre linear amplifier from Wally VK5ZW, a 100 watt transmitter from John VK5ZV, a 100 watt transmitter from Bob VK5ZDX. Other equipment and test gear included an a.c.-d.c. power supply from Eric VK5LP, a vox unit from Harry VK5HN, a 120V h.f. solid state amplifier from David VK5AU, a forward and reflected power meter by Neil VK5WN, an antenna noise bridge by Phil VK5V, a 100W FED g.d. vacuum tube retractor by Rich VK5ZFP. Some of the construction ideas and short-cuts gleaned from viewing other equipment is the most beneficial. These display nights, and this was no exception.

VICTORIAN DIVISION, V.I.A.

ANNUAL DINNER

will be held on

FRIDAY, 22nd OCTOBER, 1971

at the

VILLAGE HOTEL, Glen Waverley

The main business part of the meeting received a short progress report from the Headquarters Building Committee, heard further suggestions about details of the Novice licensing scheme, and considered several other topics of interest. The October 26 meeting will be a Jubilee Sale.

The August V.H.F. Group meeting was a round table discussion on receivers and covered a wide range of errors in production problems, v.l. (from receiver oscillators), solid state, distribution of gain throughout the circuit, effect of gain and bandwidth on overloading, and similar kinds of Novice eye-ball problems. Quite a stimulating exchange of ideas where everybody gained some help. The October meeting is to be a similar discussion session on antennas.

Would club secretaries and publicity officers decide to include a similar session to contact me at the general meetings or before the 25th of each month. (VK5GZ)

FEDERAL DIRECTORY

Rooms: 474 Victoria Pde., East Melbourne, Vic., 3002 (Mon-Fri, 1000-1700 hours). P.O. Box 67, East Melbourne, Vic., 3002.

Federal Council: VKs 2GN, 3TX, 4ZGL, 5TY, 6ZDM, 7P.

Federal Executive: President, VK3KJ; Vice-President, VK3QV; Editor, VK3APJ; Members: VKs 3ADW, 3AGW, 3AGW.

Federal Manager: P. B. Dodd, VK3CIF. **Project Australia:** Group Chairman, R. Tonkin L3000; State Co-ordinators: VKs 3RX, 4ZGL, 5NZ, 6HK, 7PF.

Federal Repeater Secretariat: VKs 2ZIM (22MHz), 2ZTD, 2ZDD. State Co-ordinator, VK7FP.

Key Section: Manager VK3TX; State Co-ordinators, VKs 2YB, 3XB, 4AD, 3PM, 7LJ. **Federal Interlink With Co-ordinator:** VK3LC; State Co-ordinators: VKs 2ZO, 4L3039, 4KX.

Federal Contest Manager: VK4FJ; Fed. Awards Manager, VK3AMK; Fed. QSL Manager, VK3AMK; Novice Liaison Officer, VK3QV; Novice Licensing Committee Chairman, VK3YA.

DIVISIONAL DIRECTORY

Please refer to August issue, page 15.

New South Wales: Delete references to "store" and "S.w.I. Mt. 3rd Fr."

South Australia.—Delete all against VK5WI and replace with: VK5WI—Sun, 0900 hrs. 1815 KHz. a.s.b. on 10.1 MHz. 3015 KHz. a.s.b. VK5ZQ, on 7125 KHz. a.m. by VK5KPF, on 14170 KHz. a.s.b. by VK5XV, on 51.150 MHz. a.m. by VK5ZDX, on 10.1 MHz. a.m. by VK5AWI, in D. v. m. of Gambier 2 m. by VK5DK, in D. v. m. 2 m. by VK5CM. B.c. officer VK5XDY.

Queensland.—Add: Students' Classes Wed. 1930 hrs.

Divisional Officers, 1971-72.—Vice-Pres., add VK3TX. Div. Council members, add VK6TX.

Zone and Club Directory.—VK7: Northern Zone, 10.1 MHz. 1930 hrs. 10.1 MHz. 1930 hrs. 2nd Friday, North West Zone at Lakins Hall, Ulverston, first Tuesday (Sec. VK7MX).

CALENDAR

Listen also to appropriate Sunday

Morning Divisional Broadcasts.

Oct. 15/17—Scout Jamboree of the Air.

New South Wales

Oct. 16—V.H.F. Spring Field Day at Hoxton Pt.

17—Hunter Branch Field Day, Marmong Point Park from 1000 hrs.

22—General Meeting—Sydney.

27—Sydney 2 m. fox hunt.

Nov. 5—Meetings: V.H.F. Group, Sydney; Hunter Branch, Newcastle; Central Coast.

21—Blue Mountains Branch Field Day, at Lawson Swimming Pool—family picnic day (VK2BDC).

Victoria

Oct. 22—Annual Dinner at Village Green Hotel, Glen Waverley.

23/24—Western Zone, 24th Convention at Warracknabeal (23rd) and Wyperfeld Nat. Park (24th)—VK3AQX.

Nov. 7—V.H.F. Field Day.

21—Midland Zone H.F./V.H.F. Rally, Lake Eppalock.

Queensland

Nov. 5—V.H.F. Tx Hunt, Kangaroo Point.

Amateur Radio, October, 1971



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Selectivity: 2.4 KHz. (6 dB. down), 4.2 KHz. (60 dB. down).

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Frequency Range: 3.5 to 4, 7 to 7.5, 10 to 10.5, 14 to 14.5, 21 to 21.5, 27 to 27.5, 28 to 30 MHz.

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Frequency Stability: Less than 100 Hz. drift in any 30-minute period.

Antenna Impedance: 50 to 100 ohms-SWR 2:1 or less.

Audio Output: 3 watts, 350-2200 Hz., 4 ohms impedance.

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Power Source: 12 volts DC, or 100, 117, 200, 220, 234 volts AC.

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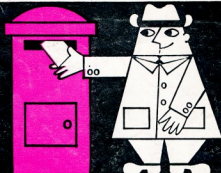
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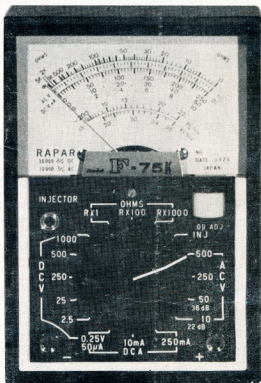
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